

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 h
Edition : 26.06.92
Replaces : 02.92
Test oil : ISO-4113

Combination no. : 0 402 646 923

Injection pump
Pump designation : PE6P130A720RS7225
EP type number : 0 412 636 817
Governor
Governor design. : RQV300...900PA946
Governor no. : 0 421 813 845

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.061

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 11.50...12.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 27.0...27.3

100 s: (26.6...27.6)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0

Rack travel in mm : 4.4...4.8

Del.quantity cm3/ : 1.9...2.5

100 s: (1.5...2.9)

Spread cm3 : 1.0

100 s: (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 945

travel mm : 8.40...8.60

2nd speed rpm : 300

travel mm : 1.00...1.40

3rd speed rpm : 500

travel mm : 3.30...3.90

4th speed rpm : 700

travel mm : 5.50...5.90

5th speed rpm : 1200

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 270.0...273.0

1000 : (266.5...276.5)

Spread cm³ : 6.00
1000 : (10.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 11.60
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 75...83

Testing:
Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 300
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION
Speed rpm : 320...440

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.40
2nd pressure hPa : 350
Rack travel in m: 12.00...12.10
3rd pressure hPa : 300
Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 285.0...292.0
1000 s: (281.5...295.5)
Aneroid pressure h: -
Speed rpm : 500

AD2

Del.quantity cm³/ : 202.0...205.0
1000 s: (198.5...208.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.40...4.80
Del.quantity cm³/ : 19.0...25.0
1000 s: (15.0...29.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 926

Injection pump
Pump designation : PE6P120A320LS7834-10
EP type number : 0 412 626 853
Governor
Governor design. : RQV300...950PA797-19
Governor no. : 0 421 813 901

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
: (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50

3rd speed rpm : 780

travel mm : 6.10...6.60

4th speed rpm : 1009

travel mm : 8.30...8.80

5th speed rpm : 1092

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 550
Aneroid pressure h: 1200
Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 13.90
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 950
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.40
2nd pressure hPa : 250
Rack travel in m: 10.60...10.70
3rd pressure hPa : 750

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Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 950
Del.quantity cm3/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 926X

Injection pump
Pump designation : PE6P120A320LS7834-10
EP type number : 0 412 626 853
Governor
Governor design. : RQV300...950PA797-19
Governor no. : 0 421 813 901

Cust. part no. : 0120740502

Customer spec. information
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
: (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.50

2nd speed rpm : 617
travel mm : 5.00...5.50

3rd speed rpm : 780
travel mm : 6.10...6.60

4th speed rpm : 1009
travel mm : 8.30...8.80

5th speed rpm : 1092
travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1020
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1200
Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 13.90
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1200
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 82...90

Testing:

Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 950
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.10...10.40

2nd pressure hPa : 250

Rack travel in m: 10.60...10.70

3rd pressure hPa : 750

Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 950

Del.quantity cm3/ : 236.0...239.0

1000 s: (233.0...242.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 134.0...136.0

1000 s: (131.0...139.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 200.0...230.0

1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 927

Injection pump
Pump designation : PE6P120A320RS7138
EP type number : 0 412 626 822
Governor
Governor design. : RQV300...900PA712-7
Governor no. : 0 421 813 913

Customer-spec. information
Customer : SCANIA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
: (4.35...4.55)

Rack travel in mm : 9.00...12.00

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Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.6...5.0

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.7)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.40...1.80

2nd speed rpm : 350

travel mm : 1.90...2.50

3rd speed rpm : 650

travel mm : 4.70...5.30

4th speed rpm : 950

travel mm : 7.90...8.10

5th speed rpm : 1045

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 165.0...167.0

1000 : (162.0...170.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 100...108

Testing:
1st rack travel in: 11.20
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 330...390

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 360
Rack travel in m: 11.80...11.90
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 900
Del.quantity cm³/ : 164.0...172.0
1000 s: (162.0...174.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 125.0...129.0
1000 s: (122.0...132.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...320.0
1000 s: (266.0...324.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 646 929

Injection pump
Pump designation : PE6P120A320LS7834-10
EP type number : 0 412 626 853
Governor
Governor design. : RQV300...1050PA797
-25
Governor no. : 0 421 813 924

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
: (5.45...5.65)
Rack travel in mm : 20.00...21.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 24.0...24.2
100 s: (23.7...24.5)

Spread cm3 : 0.6
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.3...6.9
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.6
100 s: (1.0)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.50
2nd speed rpm : 608
travel mm : 4.80...5.30
3rd speed rpm : 820
travel mm : 5.90...6.40
4th speed rpm : 1108
travel mm : 8.30...8.80
5th speed rpm : 1183
travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1130
Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1200
Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 120...128

Testing:

1st rack travel in: 13.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 87...92

Testing:

Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 250
Rack travel in m: 10.60...10.70

A10

3rd pressure hPa : 750
Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.06.92
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 646 929X

Injection pump
 Pump designation : PE6P120A320LS7834-10
 EP type number : 0 412 626 853
 Governor
 Governor design. : RQV300...1050PA797
 -25
 Governor no. : 0 421 813 924

Cust. part no. : 0200744102

Customer spec. information
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.00...1.50

2nd speed rpm : 608
 travel mm : 4.80...5.30

3rd speed rpm : 820
 travel mm : 5.90...6.40

4th speed rpm : 1108
 travel mm : 8.30...8.80

5th speed rpm : 1183
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1130
Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h : 1200
Del.quantity : 240.0...242.0
1000 : (237.0...245.0)
Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 120...128

Testing:

1st rack travel in: 13.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 87...92

Testing:

Speed rpm : 200
Minimum rack travel: 8.70
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.30
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.40
2nd pressure hPa : 250
Rack travel in m: 10.60...10.70
3rd pressure hPa : 750
Rack travel in m: 13.80...14.00

START CUT-OUT

Speed 1/min : 240 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...230.0
1000 s: (196.0...234.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 746 933
Injection pump
Pump designation : PES6P120A720LS7262
EP type number : 0 412 726 875
Governor
Governor design. : RQV300...1050PA1040
Governor no. : 0 421 814 007

Customer-spec. information
Customer : MTU

Engine : 6R183-02

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 20.00...21.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.90...14.00

Del.quantity cm³/ : 33.0...33.2

100 s: (32.7...33.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del.quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.10...1.30

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 800

travel mm : 5.90...6.20

4th speed rpm : 1100

travel mm : 8.10...8.50

5th speed rpm : 1175

travel mm : 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1600

Del.quantity : 330.0...332.0
1000 : (327.0...335.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:

1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:

Speed rpm : 250
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1600
Rack travel mm : 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.60...7.80
2nd pressure hPa : 1200
Rack travel in m: 13.60...13.70
3rd pressure hPa : 400
Rack travel in m: 9.60...9.80

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

A14

Aneroid pressure h: 1600
Speed rpm : 750
Del.quantity cm3/ : 333.0...337.0
1000 s: (330.0...340.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 385.0...405.0
1000 s: (381.0...409.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 16,0 a
 Edition : 03.04.92
 Replaces : 03.91
 Test oil : ISO-4113
 Combination no. : 0 402 748 802
 Injection pump
 Pump designation : PES8P120A920/4LS7159
 EP type number : 0 412 728 801
 Governor
 Governor design. : RQV325...1050PA848-21K
 Governor no. : 0 421 815 201

Customer-spec. information
 Customer : MACK

Engine : EE9 502

1st version kW : 368.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow
 quantity min. 1/h: 160...170

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 7- 8- 4- 5-
 6- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 630
 Rack travel in mm : 12.10...12.20
 Del.quantity cm3/ : 21.1...21.3
 100 s: (20.8...21.6)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 325.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm3/ : 4.0...4.6
 100 s: (3.8...4.8)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 325
 travel mm : 1.50...1.80
 2nd speed rpm : 450
 travel mm : 2.60...3.00
 3rd speed rpm : 750
 travel mm : 4.10...4.50
 4th speed rpm : 1120
 travel mm : 7.40...7.60
 5th speed rpm : 1430
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1185
 Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 630
Aneroid pressure h: 1200
Del.quantity : 211.0...213.0
1000 : (208.0...216.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 12.30
Speed rpm : 1115...1125
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76

Testing:
Speed rpm : 225
Minimum rack travel: 7.40
Speed rpm : 325
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION
Speed rpm : 325...600

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 630
Rack travel in m: 12.10...12.20
2nd speed rpm : 1050
Rack travel in m: 13.30...13.50
3rd speed rpm : 500
Rack travel in m: 0.00...11.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1050
Pressure hPa : 1200
Rack travel mm : 13.30...13.50

Measurement
Speed 1/min : 1050

1st pressure hPa : -
Rack travel in m: 9.10...9.50

2nd pressure hPa : 195
Rack travel in m: 10.20...10.30
3rd pressure hPa : 410
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 204.0...210.0
1000 s: (201.0...213.0)
Spread cm3 : 10.00
1000 s: (14.0)
Speed rpm : 850
Del.quantity cm3/ : 159.0...161.0 *
1000 s: (151.0...173.5)
Aneroid pressure h: -
Speed rpm : 400
Del.quantity cm3/ : 170.5...174.5
1000 s: (168.5...176.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...190.0
1000 s: (145.0...195.0)
Rack travel in mm : 9.50...9.90

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 40.0...46.0
1000 s: (38.0...48.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5178P4

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment,

check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 766 800

Injection pump
Pump designation : PES6P120A720/3LS7120
-3
EP type number : 0 412 726 878
Governor
Governor design. : RSV350...1050POA529
-3
Governor no. : 0 421 833 317

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 213.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.1...20.3
100 s: (19.8...20.6)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 650
Aneroid pressure h: 650
Del.quantity : 201.0...203.0
1000 : (198.0...206.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 90...98

Testing:

1st rack travel in: 12.30
Speed rpm : 1080...1085
2nd rack travel in: 4.00
Speed rpm : 1160...1173
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7
Speed rpm : 350
Rack travel in mm : 5.60...5.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 13.30...13.50
2nd speed rpm : 950
Rack travel in m: 13.70...13.90
3rd speed rpm : 875
Rack travel in m: 14.20...14.40
4th speed rpm : 750
Rack travel in m: 14.70...14.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 12.30...12.50
2nd pressure hPa : 400
Rack travel in m: 13.20...13.40
3rd pressure hPa : 850
Rack travel in m: 14.30...14.50
4th pressure hPa : -
Rack travel in m: 11.30...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1030

Del.quantity cm3/ : 190.0...193.0
1000 s: (187.0...196.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 214.0...219.0
1000 s: (211.0...222.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 142.0...144.0
1000 s: (139.0...147.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1080...1085

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB6,11
Edition : 03.07.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump
Pump designation : PES6MW100/720RS1515
EP type number : 0 413 206 013
Governor
Governor design. : RQV300...1300MW125-4
Governor no. : 0 420 083 284

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kW : 127.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 21.00...0.00

A20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.2

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.60...9.00

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 10.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:

Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.90...4.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.70...8.90

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 9.40...9.60
2nd pressure hPa : 500
Rack travel in m: 10.80...11.00
3rd pressure hPa : 1000
Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 89.0...92.0
1000 s: (86.5...94.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

A21

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.20
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 I 1
Edition : 26.06.92
Replaces : 03.92
Test oil : ISO-4113

Combination, no. : 0 403 246 032

Injection pump
Pump designation : PES6MW100/72ORS1515
EP type number : 0 413 206 013
Governor
Governor design. : RQV300...1300MW125-2
Governor no. : 0 420 083 259

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kW : 142.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
: (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.4

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.00...8.40

2nd speed rpm : 960

travel mm : 5.40...5.60

3rd speed rpm : 600

travel mm : 3.20...3.80

4th speed rpm : 300

travel mm : 0.80...1.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1100

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:
1st rack travel in: 11.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.70...8.90

Measurement
Speed 1/min : 500

1st pressure hPa : 250
Rack travel in m: 9.70...9.90
2nd pressure hPa : 500
Rack travel in m: 11.40...11.60
3rd pressure hPa : 1100
Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm³/ : 100.0...103.0
1000 s: (98.0...105.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 31.0...33.0
1000 s: (29.0...35.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL
Edition : 26.06.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 403 444 135

Injection pump
Pump designation : PES4MW100/320RS1223
EP type number : 0 413 404 119
Governor
Governor design. : RGV300...1100MW122-1
K
Governor no. : 0 420 083 990

Customer-spec. information
Customer : VME

Engine : TD45E

1st version kW : 92.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 173...176

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.70...14.80

Del.quantity cm³/ : 12.8...13.0

100 s: (12.6...13.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm³/ : 2.8...3.2

100 s: (2.5...3.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1145

travel mm : 10.00...10.40

2nd speed rpm : 800

travel mm : 6.10...6.30

3rd speed rpm : 500

travel mm : 3.40...4.00

4th speed rpm : 300

travel mm : 1.50...1.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 750

Del.quantity : 128.0...130.0

1000 : (126.0...132.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 13.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 6.00...6.20

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.70...14.80
2nd speed rpm : 880
Rack travel in m: 15.00...15.10
3rd speed rpm : 550
Rack travel in m: 14.20...14.30
4th speed rpm : 750
Rack travel in m: 14.70...14.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : -
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 550

1st pressure hPa : 220
Rack travel in m: 13.10...13.20
2nd pressure hPa : 370
Rack travel in m: 13.60...13.90
3rd pressure hPa : 750
Rack travel in m: 14.20...14.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 750

Speed rpm : 880
Del.quantity cm3/ : 133.5...136.5
1000 s: (131.0...139.0)
Spread cm3 : 5.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 86.0...88.0
1000 s: (84.0...90.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...155.0
1000 s: (142.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 444 139

Injection pump
Pump designation : PES4MW100/720RS1151
EP type number : 0 413 404 104
Governor
Governor design. : RQV300...1300MW67-7
Governor no. : 0 420 083 278

Customer-spec. information
Customer : MB-NFZ

Engine : OM364A

1st version kw : 79.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.40...8.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 108...116

Testing:

1st rack travel in: 9.80
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1420...1450
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 74...82
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.4

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 480...540

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 10.80...10.90
2nd speed rpm : 600
Rack travel in m: 11.60...11.70
3rd speed rpm : 1000
Rack travel in m: 11.60...11.70
4th speed rpm : 1175
Rack travel in m: 11.30...11.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.70...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : 150
Rack travel in m: 10.30...10.50
2nd pressure hPa : 300
Rack travel in m: 11.30...11.50
3rd pressure hPa : 700
Rack travel in m: 11.60...11.70

START CUT-OUT

A27

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm³/ : 75.0...78.0
1000 s: (72.5...80.5)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 9.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 4,5 Q
Edition : 21.05.92
Replaces : 11.91
Test oil : ISO-4113

Combination no. : 0 403 446 287

Injection pump
Pump designation : PES6MW100/320RS1219
EP type number : 0 413 406 209
Governor
Governor design. : RQV350...1100MW118
Governor no. : 0 420 083 249

Customer-spec. information
Customer : VME

Engine : TD 61 GB

1st version kW : 115.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.00...9.40

2nd speed rpm : 1150

travel mm : 8.70...8.90

3rd speed rpm : 725

travel mm : 3.70...4.30

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.60

Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.10...1.00

LOW IDLE 1

Control Lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:

Speed rpm : 200
Minimum rack trave: 8.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.60...11.70
2nd speed rpm : 700
Rack travel in m: 12.40...12.60
3rd speed rpm : 1025
Rack travel in m: 11.80...12.10
4th speed rpm : 900
Rack travel in m: 12.20...12.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 870
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 700

1st pressure hPa : -

Rack travel in m: 9.80...9.90

2nd pressure hPa : 250

Rack travel in m: 10.10...10.40

3rd pressure hPa : 1000

Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

801

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 122.5...125.5
1000 s: (120.0...128.0)
Spread cm3 : 3.50
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 77.0...79.0
1000 s: (75.0...81.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 6,2 J 1
Edition : 13.03.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 403 446 291

Injection pump
Pump designation : PES6MW100/320RS1214
EP type number : 0 413 406 204
Governor
Governor design. : RQV275...1250MW115-1
K
Governor no. : 0 420 083 992

Customer-spec. information
Customer : RVI

Engine : MIDR 060226 V

1st version kW : 129.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30
: (4.15...4.35)
Rack travel in mm : 16.50...19.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.10...13.20

Del.quantity cm³/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.10...6.50

Del.quantity cm³/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330

travel mm : 9.80...10.20

2nd speed rpm : 950

travel mm : 6.90...7.10

3rd speed rpm : 550

travel mm : 3.60...4.20

4th speed rpm : 275

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1000

Del.quantity : 103.0...105.0

1000 : (101.0...107.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 298...306

Testing:
1st rack travel in: 12.10
Speed rpm : 1320...1340
2nd rack travel in: 4.00
Speed rpm : 1460...1500
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 238...246
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.30

Testing:
Speed rpm : 200
Minimum rack travel: 6.40
Speed rpm : 275
Rack travel in mm : 5.10...5.30

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.10...13.20
2nd speed rpm : 700
Rack travel in m: 12.20...12.30
3rd speed rpm : 1000
Rack travel in m: 12.60...12.80
4th speed rpm : 500
Rack travel in m: 11.80...12.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1000
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 12.00...12.20
2nd pressure hPa : 180
Rack travel in m: 12.60...12.80
3rd pressure hPa : 140
Rack travel in m: 12.30...12.50

B03

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 98.5...101.5
1000 s: (96.0...104.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm3/ : 89.0...91.0
1000 s: (87.0...93.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.10
Speed rpm : 1320...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...112.0
1000 s: (85.0...115.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.10...6.50
Del.quantity cm3/ : 20.0...24.0
1000 s: (17.5...26.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:
Set start-of-delivery sensor with
prestroke = 4.20...4.30 mm at
cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
Edition : 03.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 308
Injection pump
Pump designation : PES6MW100/32ORS1198
EP type number : 0 413 406 188
Governor
Governor design. : RQV350...1200MW46-47
Governor no. : 0 420 083 277

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.5
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.80...10.20

2nd speed rpm : 1250

travel mm : 7.90...8.10

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del.quantity : 122.0...124.0

1000 : (120.0...126.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 102...110

Testing:

1st rack travel in: 10.50
Speed rpm : 1270...1290
2nd rack travel in: 4.00
Speed rpm : 1405...1415
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.80
2nd pressure hPa : 245
Rack travel in m: 9.80...9.90
3rd pressure hPa : 395
Rack travel in m: 10.90...11.30

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm3/ : 118.5...122.5
1000 s: (116.5...124.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 68.0...71.0
1000 s: (66.0...73.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1819888C91
Only perform pump setting with original
overflow valve without IH hose and
restrictor 1.2 mm diameter.

In unlatched condition, do not
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D
Edition : 21.05.92
Replaces : 01.92
Test oil : ISO-4113

Combination no. : 0 403 456 115

Injection pump
Pump designation : PES6MW100/321RS1215
EP type number : 0 413 406 205
Governor
Governor design. : RQ250/1200MW84-7
Governor no. : 0 420 082 055

Customer-spec. information
Customer : MAN

Engine : D 0826 LUH 01

1st version kW : 199.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 17.5...17.7

100 s: (17.3...17.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 2.8...3.2

100 s: (2.5...3.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

travel mm : 9.30...9.70

2nd speed rpm : 1255

travel mm : 6.50...6.70

3rd speed rpm : 360

travel mm : 3.90...4.50

4th speed rpm : 250

travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1400

Del.quantity : 175.0...177.0

1000 : (173.0...179.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.20
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.4

Testing:

Speed rpm : 150
Minimum rack travel: 8.00
Speed rpm : 250
Rack travel in mm : 6.30...6.50

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 350
Rack travel mm : 9.70...9.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.10
2nd pressure hPa : 850
Rack travel in m: 12.30...12.60
3rd pressure hPa : 1400
Rack travel in m: 14.20...14.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 600
Del.quantity cm3/ : 180.0...183.0
1000 s: (177.5...185.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 60.0...62.0
1000 s: (58.0...64.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.20
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7126
Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 456 118

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190
Governor
Governor design. : RQV250...1200MW83-3
Governor no. : 0 420 083 280

Customer-spec. information
Customer : MAN

Engine : D 0826 LF08

1st version kW : 169.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 14.0...14.2

100 s: (13.8...14.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
travel mm : 10.50...10.60

2nd speed rpm : 810
travel mm : 5.90...6.10

3rd speed rpm : 500
travel mm : 3.70...4.30

4th speed rpm : 250
travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 140.0...142.0

1000 : (138.0...144.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 120...128

Testing:

1st rack travel in: 11.40
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION

Speed rpm : 330...420

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.60...12.70
2nd speed rpm : 600
Rack travel in m: 12.80...13.00
3rd speed rpm : 800
Rack travel in m: 12.80...13.00
4th speed rpm : 1200
Rack travel in m: 12.30...12.50

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 155
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 550
Rack travel in m: 11.90...12.20
3rd pressure hPa : 1000
Rack travel in m: 12.80...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600
Del.quantity cm3/ : 139.5...142.5
1000 s: (137.0...145.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7135

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 26.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 456 119

Injection pump
Pump designation : PES6MW100/321RS1201
EP type number : 0 413 406 190
Governor
Governor design. : RQ250/1200MW84-10
Governor no. : 0 420 082 065

Customer-spec. information
Customer : MAN

Engine : D0826LF 08/LUH05

1st version kW : 169.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 8.40...8.80

2nd speed rpm : 1260

travel mm : 6.60...6.80

3rd speed rpm : 345

travel mm : 4.00...4.60

4th speed rpm : 250

travel mm : 1.80...2.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 600

Rack travel in mm : 18.20...19.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 141.0...143.0

1000 : (139.0...145.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 600

Rack travel in mm : 19.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1245...1260

2nd rack travel in: 4.00

Speed rpm : 1300...1330

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack travel: 7.00

Speed rpm : 250

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 12.80...12.90

2nd speed rpm : 600

Rack travel in m: 12.70...12.90

3rd speed rpm : 1000

Rack travel in m: 12.50...12.60

4th speed rpm : 1200

Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 155

Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 550

Rack travel in m: 11.90...12.20

3rd pressure hPa : 1000

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600

Del.quantity cm3/ : 139.5...142.5

1000 s: (137.0...145.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 74.0...76.0

1000 s: (72.0...78.0)

BREAKAWAY

1st version

1st rack travel less than

full load rack tr: 11.50

Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 60.0...80.0

1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.40...5.60

Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 5.00

1000 s: (7.00)

Remarks:

: MAN #3-7035

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 26.06.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 403 466 127

Injection pump
Pump designation : PES6MW100/120RS1137-
2

EP type number : 0 413 406 180

Governor

Governor design. : RSV550...1100MW2A335
-1

Governer no. : 0 420 085 185

Customer-spec. information

Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 194.0

Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 15.4...15.6

100 s: (15.2...15.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 550.0

Rack travel in mm : 6.7...6.9

Del.quantity cm3/ : 1.8...2.2
100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 154.0...156.0

1000 : (152.0...158.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.50
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1240...1250
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 550
Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 14.50...14.60
2nd speed rpm : 750
Rack travel in m: 15.00...15.20
3rd speed rpm : 1000
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 15.00...15.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.40...11.60
2nd pressure hPa : 400
Rack travel in m: 12.30...12.40
3rd pressure hPa : 630
Rack travel in m: 13.80...14.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 157.5...161.5
1000 s: (155.5...163.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 98.0...100.0
1000 s: (96.0...102.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 18.5...22.5
1000 s: (16.0...25.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CUM #3911657

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 26.06.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 403 466 128

Injection pump
Pump designation : PES6MW100/120RS1137-
2

EP type number : 0 413 406 180
Governor
Governor design. : RSV550...1100MW2A335
-2
Governor no. : 0 420 085 196

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 176.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 13.30...13.40

Del.quantity cm3/ : 14.0...14.2
100 s: (13.8...14.4)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 550.0
Rack travel in mm : 6.7...6.9
Del.quantity cm3/ : 2.8...3.2
100 s: (2.6...3.5)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 1000
Del.quantity : 140.0...142.0
1000 : (138.0...144.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 86...94

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.30
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1240...1250
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 13.30...13.40
2nd speed rpm : 750
Rack travel in m: 14.00...14.10
3rd speed rpm : 1000
Rack travel in m: 14.00...14.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 450
Rack travel in m: 11.00...11.10
3rd pressure hPa : 675
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 153.0...157.0
1000 s: (151.0...159.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 79.0...81.0
1000 s: (77.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.70...6.90
Del.quantity cm3/ : 28.5...32.5
1000 s: (26.0...35.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Adjust stop lever to 0.5...1.0 mm
before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE 8,4 D
Edition : 03.07.92
Replaces : 09.91
Test oil : ISO-4113
Combination no. : 0 403 476 081
Injection pump
Pump designation : PES6MW100/720RS1196-1
EP type number : 0 413 406 219
Governor
Governor design. : RSV350...1050MWOA338
Governor no. : 0 420 085 138

Customer-spec. information
Customer : LIEBHERR

Engine : D 916 T

1st version kW : 170.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.40...3.50
: (3.35...3.55)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 13.3...13.5
100 s: (13.1...13.7)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.0...6.4
Del.quantity cm3/ : 2.7...3.1
100 s: (2.4...3.3)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 750
Del.quantity : 133.0...135.0
1000 : (131.0...137.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Setting point:
Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.10
Speed rpm : 1070...1080
2nd rack travel in: 4.00
Speed rpm : 1115...1145
3rd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.90
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
3rd speed rpm : 800
Rack travel in m: 11.10...11.20
5th speed rpm : 400
Rack travel in m: 12.60...12.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : -
Rack travel mm : 10.40...10.60

Measurement

Speed 1/min : 550

1st pressure hPa : 350
Rack travel in m: 10.80...11.00
2nd pressure hPa : 750
Rack travel in m: 11.10...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 500

Del.quantity cm3/ : 127.0...130.0
1000 s: (124.5...132.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 120.0...122.0
1000 s: (118.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 27.0...31.0
1000 s: (24.5...33.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 081C
Injection pump
Pump designation : PES6MW100/720RS1196
EP type number : 0 413 406 184
Governor
Governor design. : RSV350...1050MW0A338
Governor no. : 0 420 085 138

Customer-spec. information
Customer : LIEBHERR

Engine : D 916 T

1st version kW : 160.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 049

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.40...3.50
: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del. quantity cm³/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 4.1...4.5

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 750

Del. quantity : 141.0...143.0

1000 : (139.0...145.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 84...92

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.60

Speed rpm : 915...930
2nd rack travel in: 4.00
Speed rpm : 950...980
3rd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 3.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 3.60...4.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.60...11.70
2nd speed rpm : 500
Rack travel in m: 11.60...11.70
3rd speed rpm : 700
Rack travel in m: 11.60...11.70
5th speed rpm : 550
Rack travel in m: 13.00...13.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : -
Rack travel mm : 9.80...10.00

Measurement

Speed 1/min : 550

1st pressure hPa : 400
Rack travel in m: 10.30...10.60
2nd pressure hPa : 550
Rack travel in m: 11.30...11.40
3rd pressure hPa : 750
Rack travel in m: 11.60...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 500
Del.quantity cm3/ : 140.0...143.0
1000 s: (137.5...145.5)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 103.0...105.0
1000 s: (101.0...107.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 915...930

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 500
Rack travel in mm : 4.10...4.50
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM
Edition : 03.07.92
Replaces : 04.92
Test oil : ISO-4113

Combination no. : 0 403 476 118

Injection pump
Pump designation : PES6MW100/720RS1217-1
EP type number : 0 413 406 214
Governor
Governor design. : RSV325...1200MWOA349
Governor no. : 0 420 085 194

Customer-spec. information
Customer : MWM

Engine : TD 226 B 6

1st version kW : 118.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1175

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 750

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 8.20
Speed rpm : 1220...1230
2nd rack travel in: 4.00
Speed rpm : 1240...1270
3rd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : 0.90
Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 9.20...9.30
2nd speed rpm : 750
Rack travel in m: 10.10...10.20
3rd speed rpm : 1025
Rack travel in m: 9.50...9.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 8.40...8.50

Measurement

Speed 1/min : 500

1st pressure hPa : 270
Rack travel in m: 9.10...9.20
2nd pressure hPa : 350
Rack travel in m: 9.50...9.80
3rd pressure hPa : 750
Rack travel in m: 10.10...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 750
Speed rpm : 750

Del.quantity cm3/ : 104.5...107.5
1000 s: (102.0...110.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 62.5...64.5
1000 s: (60.5...66.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1220...1230

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 90.0...110.0
1000 s: (87.0...113.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 8.0...12.0
1000 s: (5.5...14.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Test electrically-released starting
quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 03.07.92
Replaces : 04.92
Test oil : ISO-4113

Combination no. : 0 403 476 120

Injection pump
Pump designation : PES6MW100/72ORS113-
1
EP type number : 0 413 406 165
Governor
Governor design. : RSV350...750MWOA336-
6
Governor no. : 0 420 085 198

Customer-spec. information
Customer : MB-NFZ

Engine : OM 366 LA

1st version kw : 87.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...6.3

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 71...79

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50
Speed rpm : 750...755 *
2nd rack travel in: 4.00
Speed rpm : 775...788
4th rack travel in: 850
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 57...61
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.30...6.30

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 88.0...98.0
1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...6.30
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

* Read off speed set under 1.
Add 25...33 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
Edition : 03.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 476 124
Injection pump
Pump designation : PES6MW100/32ORS1213
EP type number : 0 413 406 203
Governor
Governor design. : RSV350...1150MW8A347
-2
Governor no. : 0 420 085 202

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 204.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 14.90...15.00
Del.quantity cm3/ : 16.4...16.6
100 s: (16.2...16.8)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.0...5.2
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 1200
Del.quantity : 164.5...166.5
1000 : (162.5...168.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Setting point:
Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.90

Speed rpm : 1160...1170

2nd rack travel in: 4.00

Speed rpm : 1230...1240

3rd rack travel in: 4.00

Speed rpm : 1235...1245

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.1

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 5.00...5.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1200

Rack travel mm : 14.90...15.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 300

Rack travel in m: 11.10...11.20

3rd pressure hPa : 760

Rack travel in m: 13.40...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 79.5...83.5

1000 s: (77.5...85.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 170.0...190.0

1000 s: (165.0...195.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.00...5.20

Del.quantity cm³/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm³ : 3.50

1000 s: (5.00)

Remarks:

: IHC #1818557C91

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
Edition : 03.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 476 125

Injection pump
Pump designation : PES6MW100/320RS1198-
1

EP type number : 0 413 406 211
Governor
Governor design. : RSV350...1100MW2A347
-3

Governor no. : 0 420 085 203

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 184.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing :
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 13.9...14.1

100 s: (13.7...14.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.1...5.3

Del.quantity cm3/ : 1.5...1.9
100 s: (1.3...2.2)

Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 139.0...141.0

1000 : (137.0...143.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed rpm : 800
Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1200...1210
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.10...5.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 255

Rack travel in m: 10.30...10.40

3rd pressure hPa : 535

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 83.0...87.0

1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...180.0
1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

: IHC #1819454C91

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 13,4D12
 Edition : 26.06.92
 Replaces : 10.89
 Test oil : ISO-4113

Combination no. : 0 403 548 025

Injection pump
 Pump designation : PE8MW100/720LS1128
 EP type number : 0 413 508 103
 Governor
 Governor design. : RQ300/1150MW63-3
 Governor no. : 0 420 082 030

Customer-spec. information
 Customer : KHD

Engine : BF 8L 513

1st version kW : 225.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 7- 2- 6- 5-
 4- 3

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 14.2...14.4
 100 s : (14.0...14.6)

Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.7
 Del.quantity cm³/ : 1.3...1.7
 100 s : (1.1...1.9)

Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
 travel mm : 9.00...9.80
 2nd speed rpm : 1220
 travel mm : 6.60...6.80
 3rd speed rpm : 650
 travel mm : 5.70...6.30
 4th speed rpm : 300
 travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1000
 Del.quantity : 142.0...144.0
 1000 : (140.0...146.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 29...37

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 11.90
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 100
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION
Speed rpm : 320...400

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.90...13.00
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 800
Rack travel in m: 13.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 660
Rack travel mm : 12.70...12.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.90...12.00
2nd pressure hPa : 530
Rack travel in m: 12.20...12.50

C01

3rd pressure hPa : 1000
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm3/ : 142.5...145.5
1000 s: (140.0...148.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 450
Del.quantity cm3/ : 107.0...109.0
1000 s: (105.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 13.0...17.0
1000 s: (11.0...19.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MM 2,6 a
Edition : 29.06.92
Replaces : 03.90
Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump
Pump designation : PES3A80D320/3RS1264
EP type number : 9 400 083 053
Governor
Governor design. : RSV350...1200A2B627R
Governor no. : 9 420 082 194

Customer-spec. information
Customer : MM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 5.0...5.1

100 s: (4.9...5.3)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 0.7...1.1

100 s: (0.5...1.3)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 50.5...51.5

1000 : (49.0...53.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.40...9.50
2nd speed rpm : 500
Rack travel in m: 9.40...9.60
5th speed rpm : 400
Rack travel in m: 10.60...11.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 2,6 a 1
 Edition : 21.05.92
 Replaces : 11.89
 Test oil : ISO-4113
 Combination no. : 9 400 083 423
 Injection pump
 Pump designation : PES3A80D320/3RS1264
 EP type number : 9 400 083 053
 Governor
 Governor design. : RSV350...900A7B627R
 Governor no. : 9 420 082 193

Customer-spec. information
 Customer : MMM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 3,4 b 1
 Edition : 29.06.92
 Replaces : 03.91
 Test oil : ISO-4113
 Combination no. : 9 400 083 427
 Injection pump
 Pump designation : PES4A80D320/3RS1265
 EP type number : 9 400 083 055
 Governor
 Governor design. : RSV350...900A7B627R
 Governor no. : 9 420 082 193

Customer-spec. information
 Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 0.8...1.2

100 s: (0.6...1.4)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,1 a
Edition : 29.06.92
Replaces : 03.91
Test oil : ISO-4113

Combination no. : 9 400 083 429

Injection pump
Pump designation : PES6A80D320/3RS1261
EP type number : 9 400 083 057
Governor
Governor design. : RSV350...900A79627R
Governor no. : 9 420 082 193

Customer-spec. information
Customer : MWM

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 5.1...5.2

100 s: (5.0...5.4)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.3...7.5

Del.quantity cm³/ : 0.7...1.2

100 s: (0.6...1.4)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945
2nd rack travel in: 4.00
Speed rpm : 965...978
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 10.20...10.40
5th speed rpm : 400
Rack travel in m: 10.90...11.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b14
 Edition : 21.05.92
 Replaces : 01.91
 Test oil : ISO-4113
 Combination no. : 9 400 083 458
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -2
 EP type number : 9 410 230 028
 Governor
 Governor design. : RQV350...1100AB1218-
 1R
 Governor no. : 9 420 080 302

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1165

travel mm : 7.90...8.10

2nd speed rpm : 350

travel mm : 2.00...2.50

3rd speed rpm : 650

travel mm : 4.50...5.00

4th speed rpm : 1330

travel mm : 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 800
Del. quantity : 117.0...119.0
1000 : (115.0...121.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 11.70
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78

Testing:
Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : 1.10
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 700
Rack travel in m: 13.80...13.90
3rd speed rpm : 850
Rack travel in m: 13.50...13.70
4th speed rpm : 950
Rack travel in m: 13.00...13.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

C11

1st pressure hPa : -
Rack travel in m: 11.80...12.10
2nd pressure hPa : 600
Rack travel in m: 13.20...13.30
3rd pressure hPa : 520
Rack travel in m: 12.40...12.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 700
Del. quantity cm3/ : 134.0...137.0
1000 s: (131.5...139.5)
Aneroid pressure h: 800
Speed rpm : 900
Del. quantity cm3/ : 126.0...129.0
1000 s: (123.5...131.5)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 93.5...95.5
1000 s: (91.5...97.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 160.0...180.0
1000 s: (-)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del. quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: C.D.C. # 3354617
Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 083 460

Injection pump
Pump designation : PES6A100D320/3RS2827
EP type number : 9 400 084 030
Governor
Governor design. : RQV350...1200AB1267R
Governor no. : 9 420 080 319

Customer-spec. information
Customer : CUMMINS

Engine : 6 CTAA-8.3L

1st version kW : 179.1
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
: (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm3/ : 12.9...13.1

100 s: (12.7...13.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 4.7...4.9

Del. quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm : 8.80...9.00

2nd speed rpm : 350

travel mm : 1.40...1.90

3rd speed rpm : 550

travel mm : 3.00...3.50

4th speed rpm : 1000

travel mm : 5.90...6.40

5th speed rpm : 1320

travel mm : 9.60...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1220

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
Aneroid pressure h: 1000
Del.quantity : 129.0...131.0
1000 : (127.0...133.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 10.40
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 350
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.00...12.10
3rd speed rpm : 1100
Rack travel in m: 12.00...12.10
4th speed rpm : 1150
Rack travel in m: 11.70...11.80

Aneroid/Altitude

Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.60...9.90

2nd pressure hPa : 370

Rack travel in m: 10.20...10.30

3rd pressure hPa : 590

Rack travel in m: 11.40...11.60

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm³/ : 119.0...124.0
1000 s: (117.0...126.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 134.0...137.0
1000 s: (132.0...139.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 102.0...104.0
1000 s: (100.0...106.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 166.0...180.0
1000 s: (163.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.70...4.90
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 083 462

Injection pump
Pump designation : PES6A1000320/3RS2691
-5
EP type number : 9 400 084 031
Governor
Governor design. : RSV400...900A7C2209-
3R
Governor no. : 9 420 083 262

Customer-spec. information
Customer : CUMMINS

Engine : 6 CT 8.3 L

1st version kW : 154.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 860

Rack travel in mm : 13.30...13.40

Del. quantity cm³/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.7...5.9

Del. quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

Del. quantity : 141.5...143.5

1000 : (139.5...145.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:

1st rack travel in: 12.30
Speed rpm : 928...932
2nd rack travel in: 4.00
Speed rpm : 973...985
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 860
Rack travel in m: 13.30...13.40
2nd speed rpm : 600
Rack travel in m: 13.30...13.50
5th speed rpm : 450
Rack travel in m: 13.70...14.30

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 928...932

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam 50
rotation angle after start of delivery,
cylinder 1

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 29.06.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 339
 Injection pump
 Pump designation : PES4A95D410RS2774
 EP type number : 9 400 084 019
 Governor
 Governor design. : RQV300...1300AB1066-11L
 Governor no. : 9 420 080 309

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 364 LA

1st version kW : 100.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.40...11.50

Del. quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.1

Del. quantity cm3/ : 0.7...1.3

100 s: (0.5...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.10...8.30

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 700

travel mm : 4.00...4.50

4th speed rpm : 1000

travel mm : 5.50...6.00

5th speed rpm : 1450

travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1395

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 800

Del. quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 107...115

Testing:
1st rack travel in: 10.40
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 6.90...7.10

CONSTANT REGULATION
Speed rpm : 450...600

TORQUE CONTROL
Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.40...11.50
2nd speed rpm : 500
Rack travel in m: 11.80...11.90
3rd speed rpm : 1050
Rack travel in m: 11.60...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.80
2nd pressure hPa : 320
Rack travel in m: 9.20...9.40
3rd pressure hPa : 500
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 250 (270)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 700
Del.quantity cm3/ : 96.0...99.0
1000 s: (93.5...101.5)
Aneroid pressure h: 800
Speed rpm : 1050
Del.quantity cm3/ : 98.0...101.0
1000 s: (95.5...103.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 42.5...44.5
1000 s: (40.5...46.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...92.0
1000 s: (77.0...95.0)
Rack travel in mm : 13.30...13.50

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 30.04.92
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 085 344
Injection pump
Pump designation : PES6A95D41ORS2772
EP type number : 9 400 084 018
Governor
Governor design. : RSV350...900A7C2076L
Governor no. : 9 420 083 251

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 366A

1st version kw : 107.3
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)
Rack travel in mm : 9.00...12.00

C20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 860

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.4...1.0

100 s: (0.2...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

Del.quantity : 85.5...87.5

1000 : (83.5...89.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 9.40

Speed rpm : 905...910

2nd rack travel in: 4.00

Speed rpm : 930...943

4th rack travel in: 1100

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 74...82

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack travel: 19.00

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 370...430

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

5th speed rpm : 400

Rack travel in m: 11.00...11.60

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...90.0

1000 s: (75.0...93.0)

Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 4.0...10.0

1000 s: (2.0...12.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 345
 Injection pump
 Pump designation : PES6A95D410RS2795
 EP type number : 9 400 084 020
 Governor
 Governor design. : RSV350...900A7C2076-1L
 Governor no. : 9 420 083 252

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 77.3
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 860

Rack travel in mm : 9.00...9.10

Del. quantity cm³/ : 6.4...6.6

100 s: (6.2...6.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.7

Del. quantity cm³/ : 0.6...1.2

100 s: (0.4...1.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 6.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

Del. quantity : 64.5...66.5

1000 : (62.5...68.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Testing:

1st rack travel in: 8.00

Speed rpm : 910...915

2nd rack travel in: 4.00

Speed rpm : 931...944

4th rack travel in: 1100

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 76...84

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 6.50...6.70

Rack travel in mm : 2.00

Speed rpm : 380...440

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 9.00...9.10

2nd speed rpm : 500

Rack travel in m: 9.00...9.20

5th speed rpm : 400

Rack travel in m: 9.70...10.30

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 910...915

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...90.0

1000 s: (75.0...93.0)

Rack travel in mm : 12.90...13.10

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.50...6.70

Del.quantity cm3/ : 6.0...12.0

1000 s: (4.0...14.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 30.04.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 346
 Injection pump
 Pump designation : PES4A95D410RS2805
 EP type number : 9 400 084 026
 Governor
 Governor design. : RSV350...900A7C2076-
 2L
 Governor no. : 9 420 083 253
 Customer spec. information
 Customer : MERCEDES-BENZ
 Engine : OM 364
 1st version kW : 46.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 860

Rack travel in mm : 8.60...8.70

Del.quantity cm3/ : 5.7...5.9

100 s: (5.5...6.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.4...1.0

100 s: (0.2...1.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 6.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

Del.quantity : 57.5...59.5

1000 : (55.5...61.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 108...116

Testing:

1st rack travel in: 7.60

Speed rpm : 910...915

2nd rack travel in: 4.00

Speed rpm : 931...944

4th rack travel in: 1100

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 78...86

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 380...440

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 8.60...8.70

2nd speed rpm : 500

Rack travel in m: 8.60...8.80

5th speed rpm : 400

Rack travel in m: 9.30...9.90

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.60

Speed rpm : 910...915

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 78.0...90.0

1000 s: (75.0...93.0)

Rack travel in mm : 13.30...13.50

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.40...6.60

Del.quantity cm3/ : 4.5...10.5

1000 s: (2.5...12.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

Note remarks

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.30...11.50
2nd pressure hPa : 400
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.30...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 198.5...201.5
1000 s: (195.5...204.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 202.5...205.5
1000 s: (199.5...208.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 128.5...130.5
1000 s: (125.5...133.5)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 29.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 425AA

Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 824
Governor
Governor design. : RQ300/1050PA911-1
Governor no. : 0 421 801 481

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 294.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/ : 19.4...19.6
100 s: (19.1...19.9)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.8...6.2
Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 194.0...196.0
1000 : (191.0...199.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.30...11.50
2nd pressure hPa : 400
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.30...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm³/ : 198.5...201.5
1000 s: (195.5...204.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 202.5...205.5
1000 s: (199.5...208.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 128.5...130.5
1000 s: (125.5...133.5)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

Note remarks

Combination no. : 9 400 087 425AB

Engine : OM447 LA

TEST BENCH REQUIREMENTS

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 5.00...5.10
                  : (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order      : 6- 2-  4- 1-  5- 3
```

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.3)

Spread cm3 : 0.8
 100 s: (1.2)

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 600
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80
4th pressure hPa : 1100
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 229.0...233.0
1000 s: (226.0...236.0)

Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm3/ : 244.0...247.0
1000 s: (241.0...250.0)

Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)

Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 190
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 29.06.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 9 400 087 433

Injection pump
Pump designation : PES6P120A720LS7176
EP type number : 0 412 726 821
Governor
Governor design. : RQ300/1050PA911-4
Governor no. : 9 420 080 318

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 210.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 047

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm3/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.0...6.4
Del.quantity cm3/ : 1.0...1.6
100 s: (0.7...1.9)

Spread cm3 : 0.6
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 215.5...217.5

1000 : (212.5...220.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1260
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack trave: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 15.00...15.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 550
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1050
Rack travel in m: 14.70...14.80
4th pressure hPa : -
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

D05

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 192.5...196.5
1000 s: (189.5...199.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 220.0...223.0
1000 s: (217.0...226.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 h1
 Edition : 21.05.92
 Replaces : 09.91
 Test oil : ISO-4113
 Combination no. : 9 400 087 434
 Injection pump
 Pump designation : PE6P120A32ORS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...1025PA921-2
 Governor no. : 0 421 813 785

Customer-spec. information
 Customer : VOLVO

Engine : TD 122 FS

1st version kW : 287.0
 Rated speed : 2050

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 25.3...25.5

100 s: (25.0...25.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.8...5.1

Del.quantity cm3/ : 1.7...2.2

100 s: (1.5...2.5)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 450
 travel mm : 3.60...4.20

3rd speed rpm : 800
 travel mm : 6.30...6.70

4th speed rpm : 1070
 travel mm : 8.00...8.20

5th speed rpm : 1180
 travel mm : 9.90...10.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 253.0...255.0
1000 : (250.0...258.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.00
Speed rpm : 1055...1065
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 59...67

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 250
Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 105
Rack travel in m: 10.50...10.60
3rd pressure hPa : 780
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1055...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...310.0
1000 s: (266.0...314.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.80...5.10
Del.quantity cm3/ : 17.5...22.5
1000 s: (15.0...25.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 21.05.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 456
 Injection pump
 Pump designation : PE6P120A720RS7126
 EP type number : 0 412 626 815
 Governor
 Governor design. : RQV200...1050PA725-5
 Governor no. : 0 421 813 814

Customer-spec. information
 Customer : SCANIA

Engine : DS11

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test Lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 14.10...14.20
 Del.quantity cm3/ : 23.4...23.6
 100 s: (23.1...23.9)
 Spread cm3 : 0.6
 100 s: (0.9)
 2nd speed rpm : 225.0
 Rack travel in mm : 4.5...4.9
 Del.quantity cm3/ : 1.5...1.9
 100 s: (1.2...2.2)
 Spread cm3 : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.30...2.90
 3rd speed rpm : 650
 travel mm : 4.00...4.60
 4th speed rpm : 1095
 travel mm : 8.20...8.40
 5th speed rpm : 1215
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1200
 Rack travel in mm : 8.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 234.0...236.0
 1000 : (231.0...239.0)

Spread cm3 : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 13.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 60...68

Testing:

Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 225
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 360...420

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 510
Rack travel in m: 13.00...13.10
3rd pressure hPa : 250
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1050
Del.quantity cm3/ : 222.0...230.0
1000 s: (220.0...232.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 150.0...154.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 275.0...325.0
1000 s: (271.0...329.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 29.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 459AA

Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 824
Governor
Governor design. : RQ300/1050PA911-2
Governor no. : 9 420 080 313

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 298.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.30...12.50

Del.quantity cm³/ : 19.4...19.6

100 s: (19.1...19.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 194.5...196.5

1000 : (191.0...199.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.30...11.50
2nd pressure hPa : 400
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.30...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 194.0...196.0
1000 s: (191.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 197.0...200.0
1000 s: (194.0...203.0)

Spread cm3 : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 29.06.92
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 087 459AB

Injection pump
Pump designation : PES6P120A720LS7181
EP type number : 0 412 726 824
Governor
Governor design. : RQ300/1050PA911-2
Governor no. : 9 420 080 313

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 298.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del.quantity cm³/ : 23.1...23.3

100 s: (22.8...23.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 231.0...233.0

1000 : (228.0...236.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
2nd speed rpm : 1050
Rack travel in m: 13.60...13.80
3rd speed rpm : 700
Rack travel in m: 14.10...14.30

Aneroid/Altitude
Compensator Test

1st version

Settling
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.20...11.40
2nd pressure hPa : 600
Rack travel in m: 13.10...13.30
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1100
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050

Del.quantity cm3/ : 222.0...226.0
1000 s: (219.0...229.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 237.5...240.5
1000 s: (234.5...243.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

* Increase in control-rod travel with
respect to setting at least 0.1 mm

Note remarks

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

```
Speed      rpm      : 600
Aneroid pressure h: 1050
Del.quantity      : 194.5...196.5
                1000 : (191.0...199.0)
Spread      cm3     : 5.00
                1000 : (9.00)
```

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.30
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 600

1st pressure hPa : 300
Rack travel in m: 11.30...11.50
2nd pressure hPa : 400
Rack travel in m: 10.40...10.60
3rd pressure hPa : -
Rack travel in m: 9.30...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1050

Del. quantity cm³/ : 194.0...196.0
1000 s: (191.0...199.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm³/ : 197.0...200.0
1000 s: (194.0...203.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 11.30
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 464
Injection pump
Pump designation : PES6P120A720LS7257
EP type number : 9 400 087 081
Governor
Governor design. : RQV300...1050PA1029
Governor no. : 9 420 080 325

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 257.6
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
: (4.55...4.75)
Rack travel in mm : 21.00...0.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.80

Del.quantity cm3/ : 25.8...26.0

100 s: (25.5...26.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050

travel mm : 7.70...7.90

2nd speed rpm : 300

travel mm : 0.50...1.00

3rd speed rpm : 500

travel mm : 3.00...3.50

4th speed rpm : 700

travel mm : 5.20...5.70

5th speed rpm : 1165

travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 258.0...260.0
1000 : (255.0...263.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.40...13.60
2nd speed rpm : 700
Rack travel in m: 13.60...13.80
3rd speed rpm : 850
Rack travel in m: 13.60...13.80
4th speed rpm : 950
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.90
2nd pressure hPa : 250

Rack travel in m: 11.10...11.30
3rd pressure hPa : 600
Rack travel in m: 12.90...13.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 244.5...247.5
1000 s: (241.5...250.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 21.05.92
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 087 467
Injection pump
Pump designation : PES5P120A720LS7174
EP type number : 0 412 725 806
Governor
Governor design. : RQ300/1050PA774-8
Governor no. : 9 420 080 328

Customer-spec. information
Customer : MERCEDES-BENZ

Engine : OM 449 A

1st version kW : 170.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...7.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 800

Del.quantity : 197.5...199.5

1000 : (194.5...202.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00

Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 395...435

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.20
2nd pressure hPa : 270
Rack travel in m: 11.80...11.90
3rd pressure hPa : 450
Rack travel in m: 13.10...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1050
Del.quantity cm³/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h 2
 Edition : 30.04.92
 Replaces : 09.88
 Test oil : ISO-4113
 Combination no. : 9 400 230 066
 Injection pump
 Pump designation : PES6A100D410RS2676
 EP type number : 9 410 230 023
 Governor
 Governor design. : RSV425...1100A2C2161
 -1L
 Governor no. : 9 420 234 133

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466T

1st version kw : 120.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 32...34

Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.3...5.5

Del.quantity cm3/ : 2.1...2.5

100 s: (1.8...2.7)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 500

Del.quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1145...1155

2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.30...5.50

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.40...9.40
2nd speed rpm : 750
Rack travel in m: 10.60...10.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 173
Rack travel mm : 10.30...10.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 80
Rack travel in m: 9.40...9.80
3rd pressure hPa : 500
Rack travel in m: 10.60...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 500
Speed rpm : 750
Del.quantity cm³/ : 116.0...119.0
1000 s: (114.0...121.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : -
1000 s: (84.0...92.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.40...19.40

HIGH IDLE

1st version
Speed rpm : 1195
Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE23746

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h12
Edition : 30.04.92
Replaces : 02.90
Test oil : ISO-4113

Combination no. : 9 400 230 069

Injection pump
Pump designation : PES6A100D410RS2676-1
EP type number : 9 410 230 024
Governor
Governor design. : RSV450...1000A1C2186
-1L
Governor no. : 9 420 234 149

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466A

1st version kW : 140.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.60...11.60

Del.quantity cm3/ : 12.1...12.3

100 s: (11.9...12.5)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 121.5...123.5

1000 : (119.5...125.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.60

Speed rpm : 1045...1055

2nd rack travel in: 4.00

Speed rpm : 1080...1090
3rd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.60
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 132.0...135.0
1000 s: (130.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1075
Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm : 450

Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE28030

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h7
Edition : 30.04.92
Replaces : 6
Test oil : ISO-4113

Combination no. : 9 400 230 072

Injection pump
Pump designation : PES6A100D410RS2676
EP type number : 9 410 230 023
Governor
Governor design. : RSV400...1100A2B2086
-1L
Governor no. : 9 420 234 109

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 132.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm : 2.45...2.55
: (2.40...2.60)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del.quantity cm3/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 9.30

Speed rpm : 1145...1155

2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.30...10.40
2nd speed rpm : 750
Rack travel in m: 11.70...11.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.70...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 215
Rack travel in m: 11.30...11.40
3rd pressure hPa : 65
Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 87.0...91.0
1000 s: (85.0...93.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE18160

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h9
 Edition : 30.04.92
 Replaces : 6
 Test oil : ISO-4113
 Combination no. : 9 400 230 078
 Injection pump
 Pump designation : PES6A100D410RS2676-1
 EP type number : 9 410 230 024
 Governor
 Governor design. : RSV500...900A1B2186-3L
 Governor no. : 9 420 234 115
 Customer-spec. information
 Customer : JOHN DEERE
 Engine : 6466A
 1st version kW : 128.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 32...34
 Prestroke mm : 2.45...2.55
 : (2.40...2.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 10.90...11.00
 Del. quantity cm3/ : 11.8...12.0
 100 s: (11.6...12.2)
 Spread cm3 : 0.4
 100 s: (0.6)
 2nd speed rpm : 500.0
 Rack travel in mm : 4.9...5.1
 Del. quantity cm3/ : 1.2...1.6
 100 s: (0.9...1.8)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Del. quantity : 118.0...120.0
 1000 : (116.0...122.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 9.90
 Speed rpm : 930...940
 2nd rack travel in: 4.00

Speed rpm : 975...985
3rd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1050
Speed rpm : 0.30...1.40

: JOHN DEERE # RE19917

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 4.5

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 4.90...5.10

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.90...11.00
2nd speed rpm : 650
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 132.0...136.0
1000 s: (130.0...138.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack travel: 9.90
Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 500
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 h 5
Edition : 30.04.92
Replaces : 12.91
Test oil : ISO-4113

Combination no. : 9 400 230 085

Injection pump
Pump designation : PES6A100D410RS2676-1
EP type number : 9 410 230 024
Governor
Governor design. : RSV450...1100A2C2204
L
Governor no. : 9 420 234 121

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466T

1st version kW : 119.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm : 2.45...2.55
: (2.40...2.60)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 1.7...2.1
100 s: (1.5...2.4)
Spread cm3 : 0.6
100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 99.5...101.5
1000 : (97.5...103.5)
Spread cm3 : 4.00
1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:

1st rack travel in: 8.80
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.80...9.90
2nd speed rpm : 500
Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 17.5...21.5
1000 s: (15.0...24.0)

Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE19919
Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 6
Edition : 7.7.92
Replaces : 12.88
Test oil : ISO-4113

Combination no. : 9 400 230 109

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 030
Governor
Governor design. : RSV400...1100A0C2190
-21R
Governor no. : 9 420 234 164

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kw : 117.1
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

E02

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-130-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 7.8...8.0

Del.quantity cm3/ : 3.2...3.6

100 s: (3.0...3.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 7.80...8.00
Rack travel in mm : 2.00
Speed rpm : 515...575

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 90.5...94.5
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ : 32.5...36.5
1000 s: (30.5...38.5)

EO3

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3911541

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 e
Edition : 7.7.92
Replaces : 9.87
Test oil : ISO-4113
Combination no. : 9 400 231 013
Injection pump
Pump designation : PES6P110A720RS379
Governor
Governor design. : RSV400...1050P0/457
DR

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 457 413 010
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 015
Outside diameter
x Wall thickness
x Length mm : 6,00X1,50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85
(2.70...2.90)
Rack travel in mm : 10.20
Firing order : 1-5-3-6-2-4
Phasing : 0-60-120-180-240-300

E04

Tolerance + - ° : 0.5 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 10.20
Del.quantity cm³/ : 13.5...13.7
100 s : (13.2...14.0)
Spread cm³ : 0.4
100 s : (-)
2nd speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 2.1...2.7
100 s : (-)
Spread cm³ : 0.4
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 800
Del.quantity : 135.0...137.0
1000 : (132.0...140.0)
Spread cm³ : 4.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 9.20
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1250
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 22.5...30.5
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.40

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.20
2nd speed rpm : 630
Rack travel in m: 10.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 380
Rack travel mm : 10.45...10.55

Measurement
Speed 1/min : 550

1st pressure hPa : 250
Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 630
Del.quantity cm3/ : 145.0...149.0
1000 s: (142.0...151.0)
Spread cm3 : 6.0
1000 s: (-)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm3/ : 113.6...121.6
1000 s: (110.6...124.6)
Spread cm3 : 6.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...
1000 s: (-)
Rack travel in mm : 19.0...21.0

HIGH IDLE

1st version
Speed rpm : 1150
Rack travel in mm : 6.1...6.3
Del.quantity cm3/ : 45.0...55.0
1000 s: (-)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 20.8...26.8
1000 s: (-)

Remarks:

: JOHN DEERE # AR88759

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,0 w3
Edition : 26.6.91
Replaces : 2.4.90
Test oil : ISO-4113

Combination no. : 9 400 231 187

Injection pump
Pump designation : PES6P110A720RS6005-1
Governor
Governor design. : RGV300/600...1050PA
586-3K

Cust. part no. : *

Customer-spec. information
Customer : MACK

Engine : EM6-285

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 0.3

Test nozzle holder
assembly : *

Opening
pressure, bar : 300...308

Test lines : 9 681 230 727

Outside diameter
x Wall thickness
x Length mm : 6.35X1.70X990.6

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9
(2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.5 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.20...13.30

Del.quantity cm3/ : 16.0...16.2

100 s : (15.8...16.4)

Spread cm3 : 0.5

100 s : (0.75)

2nd speed rpm : 300

Rack travel in mm : 4.40...4.60

Del.quantity cm3/ : 2.4...2.9

100 s : (2.2...2.9)

Spread cm3 : 0.7

100 s : (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 160.5...162.5

1000 : (158.5...164.5)

RATED SPEED

1st version

Control lever

position degrees: 56.5...61.5

Testing:

1st rack travel in: 12.20

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1240

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 14.5...19.5

Testing:

Speed rpm : 250

Minimum rack travel: 8.90

Speed rpm : 400

Rack travel in mm : 5.40...6.80
Rack travel in mm : 2.00
Speed rpm : 670...730

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 13.20...13.30
2nd speed rpm : 1000
Rack travel in m: 13.15...13.25
3rd speed rpm : 700
Rack travel in m: 13.75...13.85
4th speed rpm : 600
Rack travel in m: 14.15...14.25
5th speed rpm : 500
Rack travel in m: 13.65...13.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm3/ : 184.0...189.0
1000 s: (182.0...191.0)
Speed rpm : 600
Del.quantity cm3/ : 222.5...226.5
1000 s: (220.0...228.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...200.0
1000 s: (150.0...210.0)
Rack travel in mm : 10.60...10.70

LOW IDLE

Speed rpm : 300
Rack travel in mm : 24.5...29.5
Del.quantity cm3/ : (22.5...31.5)

Remarks:

: MACK #313 GC 5148 P
: 31

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

The test specifications apply to test-

E07

ing of the injection-pump assembly with
the genuine engine/nozzle-and-holder
assembly

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 08.07.92
Calibrating oil : ISO-4113

Injection pump : VE3/10F1600L481
Type number : 0 460 403 015
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 394 HT

Power KW: 51

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000

Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 67.00...68.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.5
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 59.00...60.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 10.50...14.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1700
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 37.00...43.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference 1000S.: -12.00...20.00#
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1200
 TD-travel
 difference mm: -0.80...1.00#
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: -0.10...0.30*
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 3.50...4.30
 mm: (3.20...4.60)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press hPa: 1000
 TD travel mm: 2.40...2.80
 mm: (1.90...3.30)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.30...2.10
 mm: (1.00...2.40)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.80...4.40

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.60...6.20

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.90...7.50

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
 Charge-air pressure-setting
 point hPa: 350
 LDA-stroke mm: 5.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.50...62.50
 1000S.: (59.00...65.00)

3rd speed 1/min: 1700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...43.00
 1000S.: (34.00...46.00)

9th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 64.00...67.00
 1000S.: (62.50...68.50)

12th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm³/: 67.00...68.00
 1000S.: (64.50...70.50)

16th speed 1/min: 750
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 55.50...59.50
 1000H.: -

18th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 59.00...60.00
 1000S.: (56.50...62.50)

20th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.50...69.50
1000S.: (65.00...71.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.50...14.50
1000S.: (7.50...17.50)

Dispersion cm³/: 3.5
1000S.: (3.5)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...8.00
1000S.: (1.00...9.00)

3rd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Inj.-qty. cm³/ : -6.00...8.00*
difference 1000S.: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1200
Inj.-qty. cm³/: -12.0...20.0#
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1200
TD-travel : 0.80...1.00#
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1200
Charge press. hPa: 1000

Supply pump-
pressure : -0.10...0.30*
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...70.00
1000S.: (50.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.8...6.2
MS mm: 0.6...1.0
Ya mm: 37.2...39.2
Yb mm: 48.3...56.5

Remarks:

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 09.07.92
Calibrating oil : ISO-4113
Injection pump : VE3/10F160DL483
Type number : 0 460 403 016
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 394 H

Power KW: 39

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.50...2.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.30...5.90

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Del. quantity cm3/
1000S.: 45.50...46.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 10.50...14.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1620
Del. quantity cm3/
1000S.: 21.00...27.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -18.00...26.00*

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1200
TD-travel
difference mm: -0.80...1.00*

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1200

Supply pump
pressure difference bar: -0.10...0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
TD travel mm: 3.60...4.40
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1200
TD travel mm: 2.50...2.90
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12

4th speed 1/min: 1000
TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 2.80...3.40
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1200
Supply-pump pressure bar: 5.30...5.90
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1500
Supply-pump pressure bar: 6.60...7.20
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1500
Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1620
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 21.00...27.00
1000S.: (18.00...30.00)

8th speed 1/min: 1550
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 37.00...47.00
1000S.: (36.00...48.00)

9th speed 1/min: 1500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 44.00...47.00
1000S.: (42.50...48.50)

12th speed 1/min: 1200
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 45.50...46.50
1000S.: (43.50...48.50)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 46.00...49.00
1000S.: (44.50...50.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 10.50...14.50
1000S.: (8.50...16.50)

Dispersion cm³/: 3.5
1000S.: (3.5)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 440
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 2.00...8.00
1000S.: (1.00...9.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Inj.-qty. cm³/ : -15.0...17.0#
difference 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1200
Inj.-qty. cm³/ : -18.0...26.0*
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1200
TD-travel : -0.80...1.00*
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1200
Supply pump-
pressure : -0.10...0.30#
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...95.00
1000S.: (65.00...95.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

E13

K	mm: 3.2...3.4
KF	mm: 5.8...6.2
MS	mm: 0.6...1.0
Ya	mm: 37.2...39.2
Yb	mm: 51.5...59.7

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 09.07.92
replaces : 01.08.88
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L297
Type number : 0 460 404 055
Customer Part-No. :

Customer-specific information
Customer : OPEL

Engine : 2,3 YDR

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5.10...5.50

AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.10...5.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 62.50...63.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 38.00...39.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 290
Del. quantity cm3/
1000S.: 13.50...17.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 15.00...21.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 57.00...59.00
mind 1000S.: 57.00

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm³/
difference 1000S.: -10.00...18.00*

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: -0.20...0.40*

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement

pompa di mandata (FP)

1.Speed 1/min: 1500

Supply pump

pressure

difference bar: -0.10...0.30#

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press hPa: 1000

TD travel mm: 5.10...5.50
mm: (4.60...6.00)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 800

Charge press hPa: 1000

TD travel mm: 1.50...2.30
mm: (1.20...2.60)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

5th speed 1/min: 1200

Charge press. hPa: 1000

TD travel mm: 3.70...4.30
mm: (3.30...4.70)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

9th speed 1/min: 300

Charge press. hPa: 1000

TD travel mm: 2.70...4.30 A
mm: (2.30...4.70)

Shutoff

electromagnet Volt: 12

10th speed 1/min: 800

Charge press. hPa: 1000

TD travel mm: 3.80...6.20 B
mm: (3.20...6.80)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100

Charge press. hPa: 1000

Supply-pump

pressure bar: 6.50...7.10

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1500

Charge press. hPa: 1000

Supply-pump

pressure bar: 5.10...5.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1200

Charge press. hPa: 1000

Supply-pump

pressure bar: 4.40...5.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 300

Charge press. hPa: 1000

Supply-pump
pressure bar: 4.20...4.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
Charge-air pressure-setting
point hPa: 500
LDA-stroke mm: 6.5
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.00...59.00)

2nd speed 1/min: 2700
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2500
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...21.00
1000S.: (14.00...22.00)

8th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...43.00
1000S.: -

9th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.80...53.20
1000S.: (49.70...54.30)

10th speed 1/min: 800
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...41.50
1000S.: -

12th speed 1/min: 1200
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.50...63.50
1000S.: (60.70...65.30)

18th speed 1/min: 500
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...39.00
1000S.: (36.20...40.80)

20th speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.50...62.50
1000S.: -

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 290
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 290
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.50...17.50
1000S.: (11.50...19.50)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 380

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.60
1000S.: (0.00...2.60)
3rd speed 1/min: 320
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...13.00
1000S.: (6.50...13.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/: -6.00...8.00#
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Inj.-qty. cm³/: -10.0...18.0*
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -0.20...0.40*
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.10...0.30#
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 55.00...65.00
1000S.: (55.00...65.00)

2nd speed 1/min: 400

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...53.00
1000S.: (43.00...53.00)

3rd speed 1/min: 100

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.00...59.00
1000S.: (50.00...66.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 0.8...1.2
Ya mm: 20.5...22.5
Yb mm: 59.2...73.2

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 09.07.92
replaces : 19.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L297-1
Type number : 0 460 404 056
Customer Part-No. :

Customer-specific information
Customer : OPEL

Engine : 2,3 YDT

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.70...3.10

AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.20...4.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 62.50...63.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 40.50...41.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 290
Del. quantity cm3/
1000S.: 13.50...17.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 15.00...21.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 57.00...59.00
mind 1000S.: 57.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Inj.-qty. cm³/
difference 1000S.: -22.00...24.00*
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
TD-travel
difference mm: -1.20...1.40*
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 8.00...8.80
mm: (7.70...9.10)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.70...3.10
mm: (2.20...3.60)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.30...2.10
mm: (1.00...2.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

5th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5.20...5.80
mm: (4.80...6.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
9th speed 1/min: 300
Charge press. hPa: 1000
TD travel mm: 1.50...3.50 A
mm: (1.30...3.70)

Shutoff
electromagnet Volt: 12
10th speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 3.50...5.90 B
mm: (2.90...6.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.90...7.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.70...4.30

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 300
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
KSB/AFB
valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (26.70...98.40)
 2nd speed 1/min: 2150
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 500
 LDA-stroke mm: 6.5
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 55.50...56.50
 1000S.: (53.00...59.00)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 1000S.: -
 5th speed 1/min: 2500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 15.00...21.00
 1000S.: (14.00...22.00)
 8th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 35.00...43.00
 1000S.: (34.00...44.00)
 9th speed 1/min: 2150
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 50.30...52.70
 1000S.: (49.20...53.80)
 10th speed 1/min: 2100
 Charge press. hPa: 1000

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 51.30...53.70
 1000S.: -
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm3/: 62.50...63.50
 1000S.: (60.70...65.30)
 16th speed 1/min: 800
 KSB solenoid-operated
 valve volt: 12
 Shutoff
 electromagnet volt: 12
 Del. quantity cm3/: 40.50...43.50
 1000H.: -
 18th speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.50...41.50
 1000S.: (38.70...43.30)
 20th speed 1/min: 800
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 60.50...63.50
 1000S.: -

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 290
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 290
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 13.50...17.50
 1000S.: (11.50...19.50)
 Dispersion cm3/: 3.0
 1000S.: (3.0)
 2nd speed 1/min: 380
 KSB/AFB
 valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 320
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...13.00
1000S.: (6.50...13.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

3rd speed 1/min: 1000
Inj.-qty. cm³/: -22.0...24.0*
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1000
Inj.-qty. cm³/: -1.50...1.50#
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
TD-travel : -1.20...1.40*
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD-travel : -0.50...1.10#
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.00...63.00
1000S.: (50.00...66.00)

2nd speed 1/min: 400
KSB/AFB
valve Volt: 12

E21

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...50.00
1000S.: (40.00...50.00)

3rd speed 1/min: 100

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.00...59.00
1000S.: (50.00...66.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 0.8...1.2
Ya mm: 37.9...39.9
Yb mm: 39.2...44.8

Remarks:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 09.07.92
replaces : 01.08.88
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L297-2
Type number : 0 460 404 057
Customer Part-No. :

Customer-specific information
Customer : OPEL

Engine : 2,3 YDT

Power KW: 74

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5.10...5.50

AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.10...5.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 62.50...63.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 38.00...39.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 290
Del. quantity cm3/
1000S.: 13.50...17.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 15.00...21.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 57.00...59.00
mind 1000S.: 57.00

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm³/
difference 1000S.: -10.00...18.00#

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: -0.20...0.40#

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement

pompa di mandata (FP)

1.Speed 1/min: 1500

Supply pump

pressure

difference bar: -0.10...0.30*

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press hPa: 1000

TD travel mm: 5.10...5.50

mm: (4.60...6.00)

KSB/AFB

valve Volt: 12

E23

Shutoff

electromagnet Volt: 12

4th speed 1/min: 800

Charge press hPa: 1000

TD travel mm: 1.50...2.30

mm: (1.20...2.60)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

5th speed 1/min: 1200

Charge press. hPa: 1000

TD travel mm: 3.70...4.30

mm: (3.30...4.70)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

9th speed 1/min: 300

Charge press. hPa: 1000

TD travel mm: 2.70...4.30 A

mm: (2.30...4.70)

Shutoff

electromagnet Volt: 12

10th speed 1/min: 800

Charge press. hPa: 1000

TD travel mm: 3.80...6.20 B

mm: (3.20...6.80)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100

Charge press. hPa: 1000

Supply-pump

pressure bar: 6.50...7.10

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1500

Charge press. hPa: 1000

Supply-pump

pressure bar: 5.10...5.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1200

Charge press. hPa: 1000

Supply-pump

pressure bar: 4.40...5.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 300

Charge press. hPa: 1000

Supply-pump
 pressure bar: 4.20...4.80
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 120
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)
 Delivery-quant. and breakaway char.:
 1nd speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 500
 LDA-stroke mm: 6.5
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.50...56.50
 1000s.: (53.00...59.00)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 2500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...21.00
 1000s.: (14.00...22.00)
 8th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...43.00
 1000s.: -

9th speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.80...53.20
 1000s.: (49.70...54.30)
 10th speed 1/min: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...41.50
 1000s.: -
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 62.50...63.50
 1000s.: (60.70...65.30)
 18th speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.00...39.00
 1000s.: (36.20...40.80)
 20th speed 1/min: 800
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 59.50...62.50
 1000s.: -

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 290
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 290
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.50...17.50
 1000s.: (11.50...19.50)
 Dispersion cm³/: 3.0
 1000s.: (3.0)
 2nd speed 1/min: 380

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.60
1000S.: (0.00...2.60)
3rd speed 1/min: 320
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...13.00
1000S.: (6.50...13.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/: -6.00...8.00*
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Inj.-qty. cm³/: -10.0...18.0#
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -0.20...0.40#
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.10...0.30*
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 55.00...65.00
1000S.: (55.00...65.00)

2nd speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...53.00
1000S.: (43.00...53.00)

3rd speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.00...59.00
1000S.: (50.00...66.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 0.8...1.2
LDA stroke mm: 6.5
Ya mm: 5.0...7.0
Yb mm: 42.5...52.5

Remarks:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 01.07.92
replaces : 18.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R318
Type number : 0 460 404 059

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.97.2200

Power KW: 83

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 600
Charge press. hPa: 800
Setting value mm: 1.10...1.50

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 600
Charge press hPa: 800
Setting value bar: 3.40...4.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1950
Charge press. hPa: 800
Del. quantity cm³/
1000S.: 56.00...57.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 42.50...43.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 12.50...16.50
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2475
Charge press hPa: 800
Del. quantity cm³/
1000S.: 14.00...20.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 55.00...85.00
mind 1000S.: 55.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 600
 Inj.-qty. cm³/
 difference 1000s.: 13.00...19.00#
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 600
 TD-travel
 difference mm: 0.60...0.80#
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 600
 Supply pump
 pressure
 difference bar: 0.10...0.30'
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
 Charge press hPa: 800
 TD travel mm: 1.10...1.50
 mm: (0.80...1.80)
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Charge press hPa: 800
 TD travel mm: 4.20...5.00
 mm: (3.90...5.30)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press hPa: 800
 TD travel mm: 8.70...9.50
 mm: (8.40...9.80)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2300
 Charge press hPa: 800
 TD travel mm: 10.00...10.80
 mm: (10.00...10.80)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 3.40...4.00
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Charge press. hPa: 800

Supply-pump
 pressure bar: 5.20...5.80
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 7.20...7.80
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.30
 quantity cm³/10s: (41.70...83.30)
 2nd speed 1/min: 2050
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
 Charge-air pressure-setting
 point hPa: 290
 LDA-stroke mm: 5.3
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 53.00...54.00
 1000s.: (51.00...56.00)
 2nd speed 1/min: 2550
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000s.: -
 3rd speed 1/min: 2475
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 14.00...20.00
 1000s.: (11.00...23.00)
 4th speed 1/min: 2350
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...39.00
 1000s.: -
 5th speed 1/min: 2050
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 54.00...57.00
 1000s.: (53.30...57.70)

6th speed 1/min: 1950
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.00...57.00
1000S.: (54.50...58.50)
7th speed 1/min: 1200
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.50...65.50
1000S.: -
8th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...43.50
1000S.: (40.50...45.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.50...16.50
1000S.: (10.50...18.50)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...10.50
1000S.: (5.50...10.50)

3rd speed 1/min: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...5.00
1000S.: (2.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 600
Inj.-qty. cm³/: 13.00...19.00#
difference 1000S.: (13.00...19.00)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 600
Inj.-qty. cm³/: 11.00...13.00'
difference 1000S.: (11.00...13.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 600
TD-travel : 0.60...0.80#
difference mm: (0.60...0.80)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 600
Supply pump-
pressure : 0.10...0.30'
difference bar: (0.10...0.30)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...70.00
1000S.: (50.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

KF	mm: 5.6...6.0
MS	mm: 1.6...2.0
XK	mm: 20.0...22.0
XL	mm: 11.8...15.2
Ya	mm: 37.9...39.9
Yb	mm: 41.6...47.2

Remarks:
Overflow restriction 0.55 mm - Part No. ...303

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 03.07.92
replaces : 17.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R361
Type number : 0 460 404 064
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.97.2280

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.80...3.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 62.50...63.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 35.50...36.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.7
1000S.: (2.7)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 3.00...7.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 21.00...27.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...90.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 14.50...20.50#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1000
Charge press hPa: 1000
TD-travel
difference mm: 0.60...0.80#
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1000
Charge press hPa: 1000
Supply pump
pressure
difference bar: 0.10...0.30*
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200
Charge press hPa: 1000
TD travel mm: 8.00...8.80
mm: (7.70...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.80...3.20
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 2000
Charge press. hPa: 1000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600

F02

Charge press. hPa: 1000
Supply-pump
pressure bar: 4.10...4.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (41.70...83.40)
2nd speed 1/min: 2300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 4.8
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 52.50...53.50
1000S.: (50.50...55.50)

3rd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...7.00
1000S.: -

5th speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 21.00...27.00
1000S.: (20.00...28.00)

9th speed 1/min: 2300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm3/: 53.50...56.50
 1000S.: (52.80...57.20)
 10th speed 1/min: 1950
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 56.50...1.50
 1000S.: -
 11th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 58.00...61.00
 1000S.: -
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 62.50...63.50
 1000S.: (61.00...65.00)
 18th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 35.50...36.50
 1000S.: (33.50...38.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 9.00...13.00
 1000S.: (8.00...14.00)
 2nd speed 1/min: 475
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 3.00...9.00
 1000S.: -

Residual:

1. Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 3.00...7.00
 1000S.: (2.00...8.00)
 2nd speed 1/min: 650
 Shutoff

FQ3

electromagnet Volt: 12
 Del. quantity cm3/: 1.00...4.00
 1000S.: -

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Inj.-qty. cm3/: 12.00...14.00*
 difference 1000S.: (12.00...14.00)
 Shutoff

electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press. hPa: 1000
 Inj.-qty. cm3/: 14.50...20.50#
 difference 1000S.: (13.50...21.50)
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 TD-travel : 0.60...0.80#
 difference mm: (0.60...0.80)
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30*
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 42.00...44.00
 1000S.: (40.50...45.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 65.00...95.00
 1000S.: (65.00...95.00)

2nd speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 30.00...40.00
 1000S.: (30.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.6...6.0
MS mm: 1.6...2.0
Ya mm: 33.0...35.0
Yb mm: 49.7...55.3

Adjustment Potentiometer:

Angle for
pot. °: - 12<-ARF
Supply voltage
pot. volt: 5.00
Output volt
pot. volt: 2.41

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 07.07.92
replaces : 18.02.91
Calibrating oil : ISO-4113

Injection pump : VE4/10F1350R418
Type number : 0 460 404 069

Customer-specific information
Customer : MAN

Engine : D 0824 GFD1

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.20...5.80
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 73.10...74.10

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 7.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1370
Del. quantity cm³/
1000S.: 57.00...63.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...80.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300
TD travel mm: 6.60...7.40
mm: (6.30...7.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 800
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 24

2nd speed 1/min: 1000
Supply-pump pressure bar: 5.20...5.80
Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1300
Supply-pump pressure bar: 6.90...7.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 24

Overflow : 41.70...83.30
quantity cm³/10s: (41.70...83.30)

2nd speed 1/min: 1300
Shutoff
electromagnet Volt: 24

Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1550
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1480
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

4th speed 1/min: 1430
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1370
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 57.00...63.00
1000S.: (55.50...64.50)

6th speed 1/min: 1300
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.10...76.10
1000S.: (71.60...77.60)

7th speed 1/min: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.10...74.10
1000S.: (71.10...76.10)

8th speed 1/min: 800
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 72.20...76.20
1000S.: (70.70...77.70)

9th speed 1/min: 600
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 62.80...68.80
1000S.: (61.80...69.80)

Mech. shutoff:
Mech. Abstimmung:

1st speed 1/min: 1300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 65.00...115.00
1000S.: (65.00...115.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00
1000S.: (40.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...80.00
1000S.: (40.00...80.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.6...6.0

MS mm: 1.0...1.4

SVS max. mm: 5.3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 02.07.92
replaces : 10.05.89
Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R342
Type number : 0 460 414 067
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.07.2700

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 525
Del. quantity cm3/
1000S.: 27.00...28.00

Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1100
Del. quantity cm3/
1000S.: 54.00...55.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.5
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 10.50...14.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
1000S.: 18.00...22.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...80.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1100
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 16.50...24.50#
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1100
 TD-travel
 difference mm: 0.40...0.60#
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1100
 Supply pump
 pressure
 difference bar: 0.10...0.30*
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
 TD travel mm: 4.10...4.90
 mm: (3.90...5.10)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 TD travel mm: 3.10...3.50
 mm: (2.70...3.90)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 600
 TD travel mm: 0.60...1.40
 mm: (0.40...1.60)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump
 pressure bar: 4.10...4.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1100
 Supply-pump
 pressure bar: 5.70...6.30
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Supply-pump
 pressure bar: 6.90...7.50
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 525
 Shutoff
 electromagnet Volt: 12

F09

Overflow : 69.50...111.20
 quantity cm3/10s: (69.50...111.20)
 2nd speed 1/min: 2000
 Shutoff
 electromagnet Volt: 12
 Overflow : 83.40...180.70
 quantity cm3/10s: (83.40...180.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)
 5th speed 1/min: 2300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 18.00...22.00
 1000S.: (15.50...24.50)
 8th speed 1/min: 2200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 32.00...40.00
 1000S.: (30.00...42.00)
 9th speed 1/min: 2000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 48.00...53.00 D
 1000S.: (47.00...54.00) D
 10th speed 1/min: 1500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 53.20...58.20
 1000S.: (52.20...59.20)
 12th speed 1/min: 525
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 27.00...28.00 F
 1000S.: (24.00...31.00) F
 18th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 54.00...55.00 E
 1000S.: (51.00...58.00) E

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12

Del. quantity cm3/: 10.50...14.50
 1000s.: (8.50...16.50)
 Dispersion cm3/: 3.0
 1000s.: (3.5)
 2nd speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...2.00
 1000s.: (0.00...2.00)
 3rd speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000s.: (0.00...5.00)
 5th speed 1/min: 300
 Del. quantity cm3/: 26.00...36.00
 1000s.: (25.00...37.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1100
 Inj.-qty. cm3/ : 13.30...15.30*
 difference 1000s.: (13.30...15.30)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Inj.-qty. cm3/: 16.50...24.50#
 difference 1000s.: (16.50...24.50)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1100
 Inj.-qty. cm3/: 2.00...8.00'
 difference 1000s.: (2.00...8.00)
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1100
 TD-travel : 0.40...0.60#
 difference mm: (0.40...0.60)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 TD-travel : 0.00...0.80'
 difference mm: (0.00...0.80)
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1100
 Supply pump-
 pressure : 0.10...0.30*
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...60.00
 1000s.: (40.00...60.00)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 10.00...40.00
 1000s.: (10.00...40.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...80.00
 1000s.: (40.00...80.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: K-OT
 MS mm: 0.8...1.2
 SVS max. mm: 3.5
 HBA stroke mm: 7.2
 Ya mm: 36.9...40.9
 Yb mm: 38.8...44.2

Remarks:

:
 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 03.07.92
replaces : 24.10.89
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R350
Type number : 0 460 414 070
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.27.2780

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 55.00...56.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 16.50...17.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 19.50...25.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...80.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1300
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 22.00...30.00'

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1300
 Charge press hPa: 1000
 TD-travel
 difference mm: 1.90...2.10'
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1300
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.10...0.30*
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
 Charge press hPa: 1000
 TD travel mm: 7.10...7.90
 mm: (6.80...8.20)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.20...2.60
 mm: (1.70...3.10)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 0.60...1.40
 mm: (0.30...1.70)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.60...4.20
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.60...6.20
 Shutoff

electromagnet Volt: 12
 3rd speed 1/min: 1900
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 7.60...8.20
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (41.70...83.40)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 6.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 42.50...43.50
 1000S.: (39.00...47.00)

2nd speed 1/min: 2350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)

5th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 19.50...25.50
 1000S.: (18.00...27.00)

8th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...48.00
 1000S.: (38.00...50.00)

9th speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 51.00...56.00
 1000S.: (50.00...57.00)

12th speed 1/min: 1750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quynntity cm3/: 55.00...56.00
 1000S.: (52.00...59.00)

15th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 52.50...57.50
 1000S.: (51.00...59.00)
 17th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 49.50...54.50
 1000H.: (48.00...56.00)
 18th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 16.50...17.50
 1000S.: (13.50...20.50)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 47.00...56.00
 1000S.: (46.00...57.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 325
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (8.00...16.00)

Dispersion cm³/: 6.0
 1000S.: (6.5)

2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)
 5th speed 1/min: 250
 Del. quantity cm³/: 33.00...43.00
 1000S.: (32.00...44.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

2nd speed 1/min: 1300
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 18.00...20.00*
 difference 1000S.: (18.00...20.00)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1300

Charge press. hPa: 1000
 Inj.-qty. cm³/: 22.00...30.00'
 difference 1000S.: (22.00...30.00)
 Shutoff

electromagnet Volt: 12
 5th speed 1/min: 1300
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 2.00...8.00#
 difference 1000S.: (2.00...8.00)
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1300
 Charge press. hPa: 1000
 TD-travel : 1.90...2.10'
 difference mm: (1.90...2.10)
 Shutoff

electromagnet Volt: 12
 4th speed 1/min: 1300
 Charge press. hPa: 1000
 TD-travel : 2.00...2.80#
 difference mm: (2.00...2.80)
 2nd speed 1/min: 1300
 Charge press. hPa: 1000

Supply pump-
 pressure : 0.10...0.30*
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.10...7.10
 1000S.: (3.10...10.10)

Automatic starting fuel delivery:

1st speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...80.00
 1000S.: (50.00...80.00)

2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...50.00
 1000S.: (20.00...50.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 40.00...80.00
1000s.: (40.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: K-OT
MS	mm: 0.6...1.0
SVS max.	mm: 0.8
Ya	mm: 32.0...36.0
Yb	mm: 42.9...47.1

Remarks:

;
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 03.07.92
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R393
Type number : 0 460 414 078
Customer Part-No. :

Customer-specific information
Customer : SOFIM

Engine : 8140.47.2700

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 60.50...61.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
1000S.: 24.50...25.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 11.00...15.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 40.00...46.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1100
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 25.50...33.50#

Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1100
 Charge press hPa: 1000
 TD-travel
 difference mm: 0.70...0.90#
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1100
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.10...0.30*
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 1.40...1.80
 mm: (0.90...2.30)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1900
 Charge press. hPa: 1000
 TD travel mm: 5.40...6.20
 mm: (5.40...6.20)

Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 1500
 Charge press. hPa: 1000
 TD travel mm: 3.20...4.00
 mm: (2.90...4.30)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.60...6.20
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1900
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 8.00...8.60
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1500
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 6.80...7.40
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Overflow : 75.00...119.50
 quantity cm3/10s: (75.00...119.50)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 97.30...180.70
 quantity cm3/10s: (97.30...180.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 500
 LDA-stroke mm: 6.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 49.00...50.00
 1000S.: (45.50...53.50)

2nd speed 1/min: 2300
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)

3rd speed 1/min: 2200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 19.00...27.00
 1000S.: (17.00...29.00)

5th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...46.00
 1000S.: (38.50...47.50)

9th speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 57.50...63.50
 1000S.: (57.00...64.00)

12th speed 1/min: 1800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm3/: 60.50...61.50
 1000S.: (57.50...64.50)

15th speed 1/min: 1400
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 56.00...61.00
 1000S.: (54.50...62.50)
 17th speed 1/min: 1100
 Charge press. hPa: 1000
 Shutoff
 electromagnet volt: 12
 Del. quantity cm3/: 55.00...60.00
 1000H.: (53.50...61.50)
 18th speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 24.50...25.50
 1000S.: (21.50...28.50)
 20th speed 1/min: 550
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 56.50...65.50
 1000S.: (55.50...66.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 11.00...15.00
 1000S.: (9.00...17.00)
 Dispersion cm3/: 6.0
 1000S.: (6.5)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...5.00
 1000S.: (0.00...5.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm3/: 21.70...23.70*
 difference 1000S.: (21.70...23.70)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm3/: 25.50...33.50#
 difference 1000S.: (25.50...33.50)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1100
 Charge press. hPa: 1000
 Inj.-qty. cm3/: 2.00...8.00'
 difference 1000S.: (2.00...8.00)
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1100
 Charge press. hPa: 1000
 TD-travel : 0.70...0.90#
 difference mm: (0.70...0.90)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1100
 Charge press. hPa: 1000
 TD-travel : 0.40...1.20'
 difference mm: (0.40...1.20)
 2nd speed 1/min: 1100
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30*
 difference bar: (0.10...0.30)
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...80.00
 1000S.: (40.00...80.00)

2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 18.00...48.00
 1000S.: (18.00...48.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...70.00
 1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: K-OT
 MS mm: 0.8...1.2
 SVS max. mm: 3.0
 LDA stroke mm: 6.0

XK	mm: 20.0...22.0
XL	mm: 13.1...16.5
Ya	mm: 36.9...40.9
Yb	mm: 42.5...47.9

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No.
..343,..344

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 08.07.92
replaces : 10.07.89
Calibrating oil : ISO-4113

Injection pump : VE6/11F1800L363
Type number : 0 460 416 064
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR694HJ/10

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): $\pm 0.02(0.04)$

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 3.80...4.20

Supply-pump pressure

Speed 1/min: 1500

F19

Charge press hPa: 1000
Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 84.50...85.50
Dispersion cm³/: 3.5
1000S.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 49.00...50.00

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 11.00...15.00
Del. quantity cm³/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2000
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 52.00...58.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 55.00...95.00
mind 1000S.: 55.00

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm³/
difference 1000S.: 20.00...28.00*
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
TD-travel
difference mm: 0.60...0.80*
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1500
Supply pump
pressure
difference bar: 0.20...0.40#

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
 Charge press hPa: 1000
 TD travel mm: 4.90...5.70
 mm: (4.60...6.00)
 3rd speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 3.80...4.20
 mm: (3.30...4.70)
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.40...2.20
 mm: (1.10...2.50)

Supply-pump pressure characteristic:

1st speed 1/min: 1800
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.10...7.70
 2nd speed 1/min: 1500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.10...6.70
 3rd speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 3.00...3.60

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 1000
 Overflow : 41.70...83.40
 quantity cm3/10s: (41.70...83.40)
 2nd speed 1/min: 1800
 Charge press. hPa: 1000
 Overflow : 55.60...139.00
 quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
 Charge-air pressure-setting point hPa: 400
 LDA-stroke mm: 5.2
 Del. quantity cm3/: 69.00...70.00
 1000S.: (67.00...72.00)
 3rd speed 1/min: 2130
 Charge press. hPa: 1000
 Del. quantity cm3/: 0.00...8.00
 1000S.: -
 5th speed 1/min: 2000
 Charge press. hPa: 1000
 Del. quantity cm3/: 52.00...58.00
 1000S.: (51.00...59.00)
 9th speed 1/min: 1800
 Charge press. hPa: 1000

Del. quantity cm3/: 79.00...82.00
 1000S.: (78.00...83.00)
 12th speed 1/min: 1500
 Charge press. hPa: 1000
 Del. quynity cm3/: 84.50...85.50
 1000S.: (83.00...87.00)
 18th speed 1/min: 600
 Del. quantity cm3/: 49.00...50.00
 1000S.: (47.00...52.00)
 20th speed 1/min: 600
 Charge press. hPa: 1000
 Del. quantity cm3/: 86.00...90.00
 1000S.: -

Mech. shutoff: Mech. Abstellung:

1st speed 1/min: 1800
 Charge press. hPa: 1000
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 12

Idle delivery:

1st speed 1/min: 400
 Del. quantity cm3/: 11.00...15.00
 1000S.: (9.00...17.00)
 Dispersion cm3/: 3.5
 1000S.: (3.5)
 2nd speed 1/min: 600
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 450
 Del. quantity cm3/: 5.50...10.50
 1000S.: (3.50...12.50)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm3/ : 17.00...19.00#
 difference 1000S.: (17.00...19.00)
 3rd speed 1/min: 1500
 Inj.-qty. cm3/: 20.00...28.00*
 difference 1000S.: (20.00...28.00)

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : 0.60...0.80*
 difference mm: (0.60...0.80)

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-

pressure : 0.20...0.40#

difference bar: (0.20...0.40)

Automatic starting fuel delivery:

1st speed 1/min: 300

Del. quantity cm³/: 57.00...77.00

1000S.: (57.00...77.00)

2nd speed 1/min: 400

Del. quantity cm³/: 45.00...55.00

1000S.: (45.00...55.00)

4th speed 1/min: 100

Del. quantity cm³/: 55.00...95.00

1000S.: (55.00...95.00)

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.6...6.0

MS mm: 0.8...1.2

XK mm: 20.0...22.0

XL mm: 9.7...13.1

Ya mm: 38.6...40.6

Yb mm: 50.4...62.2

Remarks:

:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

Pushing electromagnet.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 02.06.92
replaces : 18.01.89
Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R330
Type number : 0 460 424 050
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.45.261 LKW,USA

Power KW: 75

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 2.80...3.20

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000
Setting value bar: 6.40...7.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 109.50...110.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 22.00...26.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 35.00...41.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 75.00...115.00
mind 1000S.: 75.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
 Charge press hPa: 1000
 Inj.-qty. cm3/
 difference 1000S.: 10.00...18.00*
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 TD-travel
 difference mm: 1.40...1.60*
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.00...0.40'
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.70...4.50
 mm: (3.40...4.80)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press hPa: 1000
 TD travel mm: 2.80...3.20
 mm: (2.30...3.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1050
 Charge press hPa: 1000
 TD travel mm: 1.30...2.10
 mm: (1.00...2.40)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.60...4.20
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.40...7.00

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.00...7.60
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (41.70...83.40)
 2nd speed 1/min: 1320
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 500
 Charge-air pressure-setting
 point hPa: 350
 LDA-stroke mm: 6.3
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 86.00...87.00
 1000S.: (83.00...90.00)
 3rd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)
 5th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 35.00...41.00
 1000S.: (32.00...44.00)
 9th speed 1/min: 1320
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 105.50...109.50
 1000S.: (104.50...110.50)
 12th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quyntity cm3/: 109.50...110.50
 1000S.: (107.00...113.00)
 18th speed 1/min: 500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.50...67.50
1000S.: (64.00...70.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...26.00
1000S.: (19.00...29.00)

Dispersion cm³/: 3.5
1000S.: (4.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

2nd speed 1/min: 1200
Charge press. hPa: 1000
Inj.-qty. cm³/: 5.00...7.00'
difference 1000S.: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1200
Charge press. hPa: 1000
Inj.-qty. cm³/: 10.00...18.00*
difference 1000S.: (10.00...18.00)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1200
Charge press. hPa: 1000
TD-travel : 1.40...1.60*
difference mm: (1.40...1.60)

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1200
Charge press. hPa: 1000

Supply pump-
pressure : 0.00...0.40'
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...120.00
1000S.: (80.00...120.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.50...37.50
1000S.: (22.50...37.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...115.00
1000S.: (75.00...115.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.3...5.7
MS mm: 0.8...1.0
LDA stroke mm: 6.3
XK mm: 20.0...22.0
XL mm: 15.0...18.4
Ya mm: 37.9...39.9
Yb mm: 45.0...50.2

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS
Edition : 08.07.92
replaces : 09.10.91
Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R370
Type number : 0 460 424 056
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 4 TA 390

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.55
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

F25

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.20...3.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 4.30...4.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 86.50...87.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 10.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1155
Del. quantity cm³/
1000S.: 50.00...58.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 65.00...125.00
mind 1000S.: 65.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 4.80...5.60
mm: (4.50...5.90)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 750
 TD travel mm: 3.20...3.60
 mm: (2.70...4.10)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 TD travel mm: 1.60...2.40
 mm: (1.30...2.70)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 3.20...3.80
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 750
 Supply-pump pressure bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 5.80...6.40
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.00
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1215
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 3rd speed 1/min: 1170
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 10.00...60.00
 (10.00...60.00)
 5th speed 1/min: 1155
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/1000s.: 50.00...58.00
 (48.00...62.00)
 9th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 69.50...72.50
 (68.00...74.00)
 10th speed 1/min: 900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 76.50...79.50
 (74.50...81.50)
 12th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 86.50...87.50
 (84.00...90.00)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 86.50...94.50
 (84.50...96.50)
 Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 Idle delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 10.00...16.00
 (8.00...18.00)
 Dispersion cm³/1000s.: 5.5
 (7.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 0.00...4.00
 (0.00...4.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 85.00...135.00
 (85.00...135.00)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000s.: 70.00...100.00
 (70.00...100.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...125.00
1000s.: (65.00...125.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 1.1
XK	mm: 18.8...20.8
XL	mm: 11.0...14.4
Ya	mm: 34.8...38.8
Yb	mm: 41.2...46.8

Remarks:

: C.D.C. # 391 7934

Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 07.07.92
replaces : 19.06.90
Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R374
Type number : 0 460 424 057
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 4 BTA 3.9 IND

Power KW: 88
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.55
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 85.50...86.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 63.50...64.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 365
Del. quantity cm³/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1310
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 61.00...67.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...140.00
mind 1000S.: 70.00

Shutoff
electromagnet volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 4.90...5.70
mm: (4.60...6.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 4.00...4.40
mm: (3.50...4.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.00...4.60

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.60...6.20

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.70...7.30

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 6.6
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 79.50...80.50
1000S.: (76.00...84.00)

2nd speed 1/min: 1420
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

4th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1310
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 61.00...67.00
1000S.: (58.00...70.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 74.50...77.50
1000S.: (73.00...79.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 77.00...80.00
1000S.: (75.00...82.00)

12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.50...86.50
1000S.: (83.00...89.00)

18th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 63.50...64.50
1000S.: (60.00...68.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 89.00...99.00
1000S.: -

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 365
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 365
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...140.00
1000S.: (70.00...140.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...140.00
1000S.: (70.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.0...1.4
SVS max.	mm: 2.4
LDA stroke	mm: 6.6
XK	mm: 21.8...23.8
XL	mm: 13.2...16.7
Ya	mm: 35.8...37.8
Yb	mm: 43.3...48.7

Remarks:

Operate control lever after each 6925 manifold-pressure compensator pressure change.

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 01.07.92
Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R329-1
Type number : 0 460 426 120

Customer-specific information
Customer : IVECO-FIAT

Engine : 806D.25.241

Power KW: 100

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 683 901 020

Opening
Pressure bar: 172...175

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Charge press. hPa: 1000
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Charge press hPa: 1000
Setting value bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 96.00...97.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 66.50...67.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: 4.0

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 37.00...43.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 75.00...115.00
mind 1000S.: 75.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 12.00...20.00*
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200
Charge press hPa: 1000

TD-travel
 difference mm: 1.40...1.60*
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1200
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.00...0.40#
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1350
 Charge press hPa: 1000
 TD travel mm: 3.60...4.40
 mm: (3.30...4.70)
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Charge press hPa: 1000
 TD travel mm: 3.00...3.40
 mm: (2.50...3.90)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.00...5.60
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 900
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.60...7.20
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.70...8.30
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1350
 Charge press. hPa: 1000

Supply-pump
 pressure bar: 8.30...8.90
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.30
 quantity cm³/10s: (41.70...83.30)
 2nd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
 Charge-air pressure-setting
 point hPa: 500
 LDA-stroke mm: 3.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 81.00...82.00
 1000S.: (78.50...84.50)
 2nd speed 1/min: 1600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...43.00
 1000S.: (34.00...46.00)
 4th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 92.50...95.50
 1000S.: (91.00...97.00)
 5th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 96.00...97.00
 1000S.: (93.50...99.50)
 6th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm3/: 90.50...93.50
1000S.: (89.00...95.00)

7th speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 66.50...67.50
1000S.: (64.00...70.00)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1350

Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400

Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm3/: 3.5
1000S.: (4.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...5.00
1000S.: (0.00...5.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1200

Charge press. hPa: 1000

Inj.-qty. cm3/ : 12.00...20.00*
difference 1000S.: (12.00...20.00)

Shutoff

electromagnet Volt: 12

2nd speed 1/min: 1200

Charge press. hPa: 1000

Inj.-qty. cm3/: 5.00...7.00
difference 1000S.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1200

Charge press. hPa: 1000

TD-travel : 1.40...1.60#
difference mm: (1.40...1.60)

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1200

Charge press. hPa: 1000

Supply pump-

pressure : 0.00...0.40#

difference bar: (0.00...0.40)

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 85.00...125.00
1000S.: (85.00...120.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 36.00...60.00
1000S.: (36.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 75.00...115.00
1000S.: (75.00...115.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

KF mm: 5.0...5.4

LDA stroke mm: 3.0

Ya mm: 37.9...39.9

Yb mm: 43.5...49.1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 17.05.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R351
Type number : 0 460 426 130
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA-590 A

Power KW: 135
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery block
Piston stroke mm: 1.15
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850

G06

Charge press. hPa: 1400
Setting value mm: 2.20...2.60
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850
Charge press hPa: 1400
Setting value bar: 6.10...6.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1400
Del. quantity cm³/
1000S.: 79.00...80.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 58.50...59.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 4.00...6.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1370
Charge press hPa: 1400
Del. quantity cm³/
1000S.: 61.00...67.00

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...150.00
mind 1000S.: 70.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1400
TD travel mm: 2.80...3.60
mm: (2.50...3.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 850
Charge press hPa: 1400
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
Charge press hPa: 1400
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 400*
TD travel mm: 3.00...4.00
mm: (3.00...4.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1400
Supply-pump
pressure bar: 4.50...5.10
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

G07

2nd speed 1/min: 850
Charge press. hPa: 1400
Supply-pump
pressure bar: 6.10...6.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1400
Supply-pump
pressure bar: 7.70...8.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1250
Charge press. hPa: 1400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 745
LDA-stroke mm: 6.6
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...77.00
1000S.: (72.00...81.00)
2nd speed 1/min: 1500
Charge press. hPa: 1400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1470
Charge press. hPa: 1400
KSB/AFB
valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...15.00
 1000S.: (0.00...15.00)
 4th speed 1/min: 1420
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...55.00
 1000S.: (15.00...55.00)
 5th speed 1/min: 1370
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.00...67.00
 1000S.: (58.00...70.00)
 10th speed 1/min: 1100
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 77.00...83.00
 1000S.: (75.50...84.50)
 11th speed 1/min: 850
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 79.50...86.50
 1000S.: (78.00...88.00)
 12th speed 1/min: 1250
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 79.00...80.00
 1000S.: (76.50...82.50)
 18th speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.50...59.50
 1000S.: (54.50...63.50)
 20th speed 1/min: 500
 Charge press. hPa: 1400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 91.50...105.50
 1000S.: -

Mech. shutoff:
 Mech. Abstimmung:

1st speed 1/min: 1250
 Charge press. hPa: 1400
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: 12

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 375
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.00...6.00
 1000S.: (0.00...10.00)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 400
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

3rd speed 1/min: 325
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.50...20.50
 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 80.00...160.00
 1000S.: (80.00...160.00)

2nd speed 1/min: 240
 KSB/AFB
 valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 70.00...150.00
1000S.: (70.00...150.00)

Shutoff electromagnet:

Cut-in

min voltage : 12.0

Rated voltage : 10.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: -
MS	mm: 0.8...1.2
SVS max.	mm: 4.4
LDA stroke	mm: 6.6
Ya	mm: 34.8...38.8
Yb	mm: 44.0...49.2

Remarks:

: C.D.C. # 391 4928

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 12.07.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1400R367
Type number : 0 460 426 137
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

G10

Speed 1/min: 850
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850
Setting value bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Del. quantity cm³/
1000S.: 56.50...57.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1450
Del. quantity cm³/
1000S.: 37.00...43.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...110.00
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.40...6.20
mm: (5.10...6.50)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 850

TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12

4th speed 1/min: 500

TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump
pressure bar: 2.50...3.10

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 850

Supply-pump
pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100

Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)

2nd speed 1/min: 1400

Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1580

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1490

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1450

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 37.00...43.00
1000S.: (34.00...46.00)

9th speed 1/min: 1400

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 51.50...54.50
1000S.: (50.00...56.00)

10th speed 1/min: 850

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 52.50...56.50
1000S.: (50.50...58.50)

Shutoff
electromagnet Volt: 12

12th speed 1/min: 1100

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 56.50...57.50
1000S.: (54.00...60.00)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 42.00...50.00
1000S.: (40.00...52.00)

Mech. shutoff:
Mech. Abstimmung:

1st speed 1/min: 1400

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 55.00...115.00
1000S.: (55.00...115.00)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...65.00
1000s.: (25.00...65.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...110.00
1000s.: (50.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.3...1.7
XK	mm: 18.8...20.8
XL	mm: 9.6...13.0
Ya	mm: 34.8...38.8
Yb	mm: 39.3...44.7

Remarks:

: C.D.C. # 391 7542

:

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 08.07.92
replaces : 23.10.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369
Type number : 0 460 426 138
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.30...3.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Del. quantity cm³/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 6.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1040
Del. quantity cm³/
1000S.: 53.00...59.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...120.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 4.60...5.40
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750

TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.30...2.90
Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.30...3.90
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Supply-pump
pressure bar: 4.50...5.10
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1120
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1060
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)
5th speed 1/min: 1040
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 53.00...59.00
1000S.: (50.00...62.00)
9th speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 63.50...66.50
1000S.: (62.00...68.00)
10th speed 1/min: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 64.00...67.00
1000S.: (62.00...69.00)
12th speed 1/min: 850
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 66.50...67.50
1000S.: (64.00...70.00)
20th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.50...48.50
1000S.: (38.50...50.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)
Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 5.00...35.00

1000S.: (5.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm³/: 60.00...120.00

1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 0.8...1.2

SVS max. mm: 1.2

XK mm: 18.8...20.8

XL mm: 9.9...13.3

Ya mm: 34.8...38.8

Yb mm: 38.3...43.7

Remarks:

: C.D.C. # 391 7563

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS
Edition : 08.07.92
replaces : 07.11.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371
Type number : 0 460 426 140
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6 T 590

Power KW: 79

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 61.50...62.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160
Del. quantity cm³/
1000S.: 41.00...47.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 45.00...95.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.00...5.80
mm: (4.70...6.10)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 750
 TD travel mm: 2.60...3.00
 mm: (2.10...3.50)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 TD travel mm: 0.60...1.40
 mm: (0.30...1.70)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 3.80...4.40
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 750
 Supply-pump pressure bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 6.40...7.00
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1230
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 3rd speed 1/min: 1180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...45.00
 1000s.: (15.00...45.00)
 5th speed 1/min: 1160
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 41.00...47.00
 1000s.: (38.00...50.00)
 9th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.50...61.50
 1000s.: (57.00...63.00)
 12th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.50...62.50
 1000s.: (59.00...65.00)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 53.50...60.50
 1000s.: (52.00...62.00)
 Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 Idle delivery:
 1st speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 9.00...13.00
 1000s.: (6.00...16.00)
 Dispersion cm³/: 5.5
 1000s.: (7.0)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000s.: (0.00...4.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 220
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...95.00
 1000s.: (45.00...95.00)
 2nd speed 1/min: 420
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...70.00
 1000s.: (40.00...70.00)
 4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...95.00
 1000s.: (45.00...95.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4

MS mm: 0.8...1.2

SVS max. mm: 4.5

XK mm: 18.8...20.8

XL mm: 11.3...14.7

Ya mm: 34.8...38.8

Yb mm: 40.2...45.8

Remarks:

: C.D.C. # 391 7935

Overflow restriction 0.55 mm - Part No.

..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 12.07.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R372
Type number : 0 460 426 141
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.3
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.50...4.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100
Del. quantity cm³/
1000S.: 72.00...73.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 360
Del. quantity cm³/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1300
Del. quantity cm³/
1000S.: 51.00...57.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...120.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.20...6.00
mm: (4.90...6.30)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750

TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 12

4th speed 1/min: 500

TD travel mm: 1.30...2.10
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 750

Supply-pump pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100

Supply-pump pressure bar: 4.80...5.40

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)

2nd speed 1/min: 1250

Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1390

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

3rd speed 1/min: 1400

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1300

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 51.00...57.00
1000S.: (48.00...60.00)

8th speed 1/min: 1350

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

9th speed 1/min: 1250

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 68.50...71.50
1000S.: (67.00...73.00)

10th speed 1/min: 900

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 74.50...78.50
1000S.: (72.50...80.50)

11th speed 1/min: 750

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 75.00...79.00
1000S.: -

12th speed 1/min: 1100

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 73.00...74.00
1000S.: (70.50...76.50)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 64.00...72.00
1000S.: (62.00...74.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 360

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 360

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 70.00...130.00
1000s.: (70.00...130.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 30.00...70.00
1000s.: (30.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 60.00...120.00
1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.6...1.0
XK	mm: 18.8...20.8
XL	mm: 11.1...14.5
Ya	mm: 34.8...38.8
Yb	mm: 41.0...46.6

Remarks:

: C.D.C. # 391 6947

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 23.10.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-3
Type number : 0 460 426 149
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.85
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

G22

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 1.40...1.80

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 3.20...3.80

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 82.00...83.00
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 40.00...41.00

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 4.00...8.00
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 65.00...71.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...120.00
mind 1000S.: 70.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.90...2.30)

4th speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.10...2.70
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3.20...3.80
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4.30...4.90

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 450
Del. quantity cm³/: 67.00...68.00
1000S.: (63.00...72.00)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1330
Charge press. hPa: 1000
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)
5th speed 1/min: 1300
Charge press. hPa: 1000
Del. quantity cm³/: 65.00...71.00
1000S.: (62.00...74.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 73.50...76.50
1000S.: (72.00...78.00)
10th speed 1/min: 1050
Charge press. hPa: 1000
Del. quantity cm³/: 78.00...81.00
1000S.: (76.50...82.50)
12th speed 1/min: 750
Charge press. hPa: 1000

Del. quantity cm³/: 82.00...83.00
1000S.: (79.50...85.50)
18th speed 1/min: 500
Del. quantity cm³/: 40.00...41.00
1000S.: (36.00...45.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Del. quantity cm³/: 82.00...90.00
1000S.: -

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Del. quantity cm³/: 4.00...8.00
1000S.: (1.00...11.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 500
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 240
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)
2nd speed 1/min: 420
Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)
4th speed 1/min: 100
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.2...1.6
SVS max.	mm: 2.2
Ya	mm: 34.8...38.8
Yb	mm: 42.7...48.1

Remarks:

: C.D.C. # 391 7038
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 23.10.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-4
Type number : 0 460 426 150
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA-59D

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.85
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

G24

Speed 1/min: 750
Charge press. hPa: 1000
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 3.20...3.80
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/
1000s.: 82.00...83.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000s.: 40.00...41.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000s.: 4.00...8.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1000
Del. quantity cm³/
1000s.: 65.00...71.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...120.00
mind 1000s.: 70.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.10...2.70

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.20...3.80

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.30...4.90
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.00...68.00
1000S.: (63.00...72.00)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1330
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.00...71.00
1000S.: (62.00...74.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 73.50...76.50
1000S.: (72.00...78.00)

10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 78.00...81.00
1000S.: (76.50...82.50)

12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quynity cm³/: 82.00...83.00
1000S.: (79.50...85.50)

18th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...41.00
1000S.: (36.00...45.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 82.00...90.00
1000S.: -

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 4.00...8.00
1000S.: (1.00...11.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 420
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...120.00
1000S.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.0...5.4

G26

MS mm: 1.2...1.6
SVS max. mm: 2.2
Ya mm: 34.8...38.8
Yb mm: 42.7...48.1

Remarks:
: C.D.C. # 391 7037
:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 08.07.92
replaces : 18.06.90
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371-1
Type number : 0 460 426 158
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6 T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 59.00...60.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160
Del. quantity cm³/
1000S.: 37.00...43.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 65.00...105.00
mind 1000S.: 65.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.40...6.20
mm: (5.10...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750

TD travel mm: 3.10...3.50
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 750
Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40

quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1100
Shutoff

electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1230
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...33.00
1000S.: (13.00...33.00)

5th speed 1/min: 1160
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (34.00...46.00)

9th speed 1/min: 1100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...59.50
1000S.: (55.00...61.00)

12th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.00...60.00
1000S.: (56.50...62.50)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...50.50
1000S.: (40.50...52.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 550
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.50...57.50
1000S.: (17.50...57.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...105.00
1000S.: (65.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 4.1
XK	mm: 18.8...20.8
XL	mm: 10.2...13.6
Ya	mm: 34.8...38.8
Yb	mm: 39.7...45.1

Remarks:

: C.D.C. # 391 8207

:

Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 18.06.90
Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369-1
Type number : 0 460 426 167
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

H02

Speed 1/min: 750
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.60...4.20
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900
Del. quantity cm³/
1000S.: 73.00...74.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 500
Del. quantity cm³/
1000S.: 4.00...10.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1045
Del. quantity cm³/
1000S.: 60.00...66.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 4.80...5.60
mm: (4.50...5.90)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750

TD travel mm: 3.50...3.90
 mm: (3.00...4.40)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 500
 TD travel mm: 1.40...2.20
 mm: (1.10...2.50)
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 2.60...3.20
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 750
 Supply-pump pressure bar: 3.60...4.20
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1000
 Supply-pump pressure bar: 4.60...5.20
 Shutoff
 electromagnet Volt: 24
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1170
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 25.00...45.00
 1000S.: (25.00...45.00)
 5th speed 1/min: 1045
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 60.00...66.00
 1000S.: (57.00...69.00)
 9th speed 1/min: 1000

H03

Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.50...73.50
 1000S.: (69.00...75.00)
 10th speed 1/min: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 74.50...77.50
 1000S.: (72.50...79.50)
 12th speed 1/min: 900
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 73.00...74.00
 1000S.: (70.50...76.50)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 58.50...66.50
 1000S.: (56.50...68.50)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 500
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 4.00...10.00
 1000S.: (2.00...12.00)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 540
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 80.00...140.00
 1000S.: (80.00...140.00)

2nd speed 1/min: 250

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
S/S max.	mm: 1.2
XK	mm: 18.8...20.8
XL	mm: 9.9...13.3
Ya	mm: 34.8...38.8
Yb	mm: 35.7...41.3

Remarks:
: C.D.C. # 391 6972
Overflow restriction 0.55 mm - Part No.
..303

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 06.07.92
replaces : 28.03.90
Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R373-6
Type number : 0 460 426 172
Customer Part-No. :

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA5.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 147.00...150.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.6
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Charge press. hPa: 750
Setting value mm: 1.50...1.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 750
Setting value bar: 3.60...4.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 750
Del. quantity cm³/
1000s.: 91.00...92.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000s.: 66.00...67.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000s.: 21.50...25.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 1100
Charge press hPa: 750
Del. quantity cm³/
1000s.: 64.50...70.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 95.00...145.00
mind 1000s.: 95.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 750
TD travel mm: 2.60...3.40
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press hPa: 750
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump
pressure bar: 2.50...3.10

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 3.60...4.20

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1050
Charge press. hPa: 750
Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 1050
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

H06

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6.2
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 82.50...83.50
1000S.: (79.00...87.00)

2nd speed 1/min: 1170
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1120
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 64.50...70.50
1000S.: (61.50...73.50)

9th speed 1/min: 1050
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 78.50...81.50
1000S.: (77.00...83.00)

12th speed 1/min: 750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 91.00...92.00
1000S.: (88.50...94.50)

18th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.00...67.00
1000S.: (62.50...70.50)

20th speed 1/min: 500
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...108.00
1000S.: -

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1050
Charge press. hPa: 750
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.50...25.50
1000S.: (18.50...28.50)
Dispersion cm³/: 3.5
1000S.: (6.0)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...150.00
1000S.: (100.00...150.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 95.00...145.00
1000S.: (95.00...145.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.0...5.4
MS mm: 1.3...1.7
LDA stroke mm: 6.2
Ya mm: 34.8...38.8
Yb mm: 44.2...49.8

Remarks:

: C.D.C. # 391 7544
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for
DI-engines: only test using timing-
device-travel measuring device with
metal jacket

H07

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 07.07.92
replaces : 29.06.92
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8
Type number : 0 460 426 200
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9 IND.

Power KW: 64
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

H08

Setting value mm: 3.30...3.70
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.50...4.10
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
Del. quantity cm3/
1000S.: 49.50...50.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 17.00...23.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1150
Del. quantity cm3/
1000S.: 33.50...39.50
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...90.00
mind 1000S.: 50.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 6.10...6.90
mm: (5.80...7.20)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.30...3.70
mm: (2.80...4.20)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 500
 TD travel mm: 1.30...2.10
 mm: (1.00...2.40)
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 2.40...3.00
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 750
 Supply-pump pressure bar: 3.50...4.10
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 24
 Overflow quantity at overflow valve:
 1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1200
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1160
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 15.00...45.00
 1000S.: (15.00...45.00)
 5th speed 1/min: 1150
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 33.50...39.50
 1000S.: (30.50...42.50)
 12th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 24

Del. quantity cm³/: 49.50...50.50
 1000S.: (47.00...53.00)
 15th speed 1/min: 750
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 47.50...50.50
 1000S.: (45.50...52.50)
 17th speed 1/min: 600
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 43.50...49.50
 1000H.: (42.00...51.00)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 32.50...40.50
 1000S.: (30.50...42.50)
 Mech. shutoff:
 Mech. Abstimmung:
 1st speed 1/min: 1100
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet Volt: 24
 Electr. shutoff:
 1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Idle delivery:
 1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 17.00...23.00
 1000S.: (15.00...25.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 480
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Automatic starting fuel delivery:
 2nd speed 1/min: 375
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 20.00...40.00
 1000S.: (20.00...40.00)
 4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 24

Del. quantity cm3/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.0...1.4
Ya	mm: 34.8...38.8
Yb	mm: 42.4...47.6

Remarks:

: C.D.C. # 392 2411
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 30.06.92
replaces : 26.07.88
Calibrating oil : ISO-4113

Injection pump : VE4/8F2150R316
Type number : 0 460 484 019
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD7TE

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 46.50...47.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 29.50...30.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.00...6.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2375
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 18.00...24.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (4.0)

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...85.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250

Charge press hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: 29.00...35.00*
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: 1000
 TD-travel
 difference mm: 0.40...0.60*
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: 0.10...0.30#
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 5.90...6.70
 mm: (5.60...7.00)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 3.00...3.40
 mm: (2.70...3.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 Charge press hPa: 300
 TD travel mm: 1.00...1.80
 mm: (0.70...2.10)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Charge press. hPa: 300
 Supply-pump
 pressure bar: 3.50...4.10
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.70...5.30

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
 Charge-air pressure-setting
 point hPa: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...39.50
 1000S.: (36.50...41.50)

3rd speed 1/min: 2525
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000S.: (0.00...6.00)

5th speed 1/min: 2375
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...24.00
 1000S.: (17.00...25.00)

8th speed 1/min: 2275
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 33.00...39.00
 1000S.: (32.00...40.00)

9th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...47.00
 1000S.: (43.70...48.30)

10th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 45.00...47.00
 1000s.: (43.70...48.30)
 11th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...47.00
 1000s.: -
 12th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 46.50...47.50
 1000s.: (44.70...49.30)
 15th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...47.50
 1000s.: (44.20...48.80)
 17th speed 1/min: 750
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 30.00...32.00
 1000H.: (28.70...33.30)
 18th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.50...30.50
 1000s.: (27.70...32.30)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 43.50...45.50
 1000s.: (42.20...46.80)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 2100
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Shutoff
 electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 350

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.50...12.50
 1000s.: (6.50...14.50)
 Dispersion cm³/: 2.6
 1000s.: (3.0)

High Idle:

1st speed 1/mi: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...12.00
 1000s.: (6.00...14.00)
 Dispersion cm³/: 2.6
 1000s.: (3.0)

Residual:

1. Rotacao 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 2.00...6.00
 1000s.: (0.50...7.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 29.00...35.00*
 difference 1000s.: (28.00...36.00)
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Inj.-qty. cm³/: 27.00...29.00#
 difference 1000s.: (27.00...29.00)

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 TD-travel : 0.40...0.60*
 difference mm: (0.40...0.60)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1250
 Charge press. hPa: 1000
 TD-travel : 0.40...1.00'
 difference mm: (0.40...1.00)

2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.10...0.30#
 difference bar: (0.10...0.30)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1250
 Charge press. hPa: 1000
 Supply pump-
 pressure : 0.60...1.00'
 difference bar: (0.60...1.00)

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: (44.00...84.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.2...1.6
Ya mm: 19.7...21.7
Yb mm: 76.0...88.0

Remarks:

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 02.07.92
replaces : 01.02.89
Calibrating oil : ISO-4113

Injection pump : VE4/8F2450L331
Type number : 0 460 484 021
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.3l Saugd., POLO

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 3.90...4.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 23.60...24.60

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm3/
1000S.: 2.50...3.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 32.00...82.00
mind 1000S.: 32.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200
TD travel mm: 6.90...7.70
mm: (6.60...8.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 3.90...4.30
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.70...4.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2450
Supply-pump
pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)
3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...15.50
1000S.: (4.50...16.50)
5th speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)
9th speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.50...23.50
1000S.: (20.30...24.70)
10th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.50...19.50
1000S.: (12.00...22.00)
12th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23.60...24.60
1000S.: (21.90...26.30)
20th speed 1/min: 800

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.50...21.50
1000S.: (17.00...23.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.50...11.50
1000S.: (6.50...14.50)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...8.50
1000S.: (3.00...11.00)
Dispersion cm³/: 2.0
1000S.: (3.0)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...5.00
1000S.: (1.50...6.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...80.00
1000S.: (30.00...80.00)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 32.00...82.00
1000s.: (32.00...82.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: -

MS mm: 1.2...1.6

Ya mm: 32.5...36.5

Yb mm: 53.9...64.5

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 03.07.92
replaces : 11.05.89
Calibrating oil : ISO-4113

Injection pump : VE4/8F2400R349
Type number : 0 460 484 028
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M709 BT 13.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 4.60...5.00
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

H18

Charge press hPa: 1000
Setting value bar: 5.70...6.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 39.70...40.70

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 26.30...27.30

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 6.00...10.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 2550
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 28.00...34.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 33.00...63.00
mind 1000S.: 33.00
KSB/AFB
Valve Volt: 12

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: 19.00...25.00#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: 1000
TD-travel
difference mm: 0.90...1.10#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1500
Charge press hPa: 1000
Supply pump
pressure
difference bar: 0.10...0.30*
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400
Charge press hPa: 1000
TD travel mm: 8.60...9.40
mm: (8.30...9.70)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 4.60...5.00
mm: (4.10...5.50)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000

TD travel mm: 1.30...2.10
mm: (0.80...2.60)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
6th speed 1/min: 2000
Charge press. hPa: 1000
TD travel mm: 6.90...7.50
mm: (6.50...7.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
9th speed 1/min: 300
Charge press. hPa: 1000
TD travel mm: 2.30...4.70
mm: (2.30...4.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2400
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.80...8.40
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.80...7.40
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 2400
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1100
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 6.0
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.50...34.50
1000S.: (31.00...37.00)
2nd speed 1/min: 2950
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 2750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...13.00
1000S.: (4.00...14.00)
5th speed 1/min: 2550
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.00...34.00
1000S.: (25.00...37.00)
9th speed 1/min: 2400
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...41.50
1000S.: (37.50...42.50)
12th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 39.70...40.70
1000S.: (37.90...42.50)
16th speed 1/min: 1100
KSB solenoid-operated
valve volt: 12
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 26.40...29.40
1000H.: (24.90...30.90)
18th speed 1/min: 750
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.30...27.30
1000S.: (23.80...29.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

KSB/AFB
valve Volt: 12

Idle delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (3.00...13.00)

Dispersion cm³/: 3.0
1000S.: (3.5)

2nd speed 1/min: 520

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 350

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 14.50...19.50
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

2nd speed 1/min: 1500
Charge press. hPa: 1000
Inj.-qty. cm³/: 18.00...20.00*
difference 1000S.: (18.00...20.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

4th speed 1/min: 1500
Charge press. hPa: 1000
Inj.-qty. cm³/: 19.00...25.00#
difference 1000S.: (18.00...26.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1500
Charge press. hPa: 1000
TD-travel : 0.90...1.10#
difference mm: (0.90...1.10)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply pump-
pressure : 0.10...0.30*
difference bar: (0.10...0.30)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23.00...53.00
1000S.: (23.00...53.00)

2nd speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.00...63.00
1000S.: (33.00...63.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.3...1.7
LDA stroke mm: 6.0
Ya mm: 36.2...40.2
Yb mm: 39.5...48.3

Operate control lever after each
manifold-pressure compensator pressure
change. :

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
...303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 30.06.92
replaces : 18.02.91
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R317-3
Type number : 0 460 484 041
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 742

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: 0.30...0.50#
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Supply pump
pressure
difference bar: 0.10...0.30*
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.60...8.40
mm: (7.30...8.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)

H23

2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...15.00
1000S.: (6.00...16.00)

5th speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...28.00
1000S.: (21.00...29.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...33.50
1000S.: (30.20...34.80)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.30...32.30
1000S.: (29.00...33.60)

11th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.70...32.70
1000S.: (28.90...33.50)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...32.00
1000S.: (29.20...33.80)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.10...33.10
1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...10.50
1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/: 7.70...9.70*
difference 1000S.: (7.70...9.70)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Inj.-qty. cm³/: 9.00...13.00#
difference 1000S.: (9.00...13.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/: 2.00...8.00'
difference 1000S.: (2.00...8.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.30...0.50#
difference mm: (0.30...0.50)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
3rd speed 1/min: 1250
TD-travel : 0.20...0.60'
difference mm: (0.10...0.70)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

H24

pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30*
difference bar: (0.10...0.30)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60'
difference bar: (0.20...0.60)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.3...5.7
MS	mm: 1.1...1.5
SVS max.	mm: 2.7
Ya	mm: 32.6...36.6
Yb	mm: 65.7...78.3

Remarks:

Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 30.06.92
replaces : 04.12.91
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R317-5
Type number : 0 460 484 044
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 732

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.50...5.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: 9.00...13.00#
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: 0.30...0.50#
Shutoff

electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)

1.Speed 1/min: 1250
Supply pump

pressure
difference bar: 0.10...0.30*

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.60...8.40
mm: (7.30...8.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30 B
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00 A
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)
2nd speed 1/min: 2250

H26

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000s.: (0.00...5.00)

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...15.00
1000s.: (6.00...16.00)

5th speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...28.00
1000s.: (21.00...29.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...33.50
1000s.: (30.20...34.80)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.30...32.30
1000s.: (29.00...33.60)

11th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.70...32.70
1000s.: (28.90...33.50)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...32.00
1000s.: (29.20...33.80)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.10...33.10
1000s.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...10.50
1000s.: (4.50...12.50)
Dispersion cm³/: 2.5
1000s.: (3.0)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000s.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000s.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/: 7.70...9.70*
difference 1000s.: (7.70...9.70)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Inj.-qty. cm³/: 9.00...13.00#
difference 1000s.: (9.00...13.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/: 2.00...8.00'
difference 1000s.: (2.00...8.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.30...0.50#
difference mm: (0.30...0.50)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : 0.20...0.60'
difference mm: (0.10...0.70)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:

H27

pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 0.10...0.30*
difference bar: (0.10...0.30)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : 0.20...0.60'
difference bar: (0.20...0.60)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000s.: (45.00...75.00)

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000s.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000s.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.1...1.5
SVS max. mm: 1.8
Ya mm: 32.6...36.6
Yb mm: 65.7...78.3

Remarks:

A = KSB adjustment point
B = KSB curve point

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet :
Edition : 30.06.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R312
Type number : 0 460 494 227
Customer Part-No. :

Customer-specific information
Customer : TOGLIATTI/SU

Engine : VAZ 341 LADA

Power KW: 40

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.80...5.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 32.50...33.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 8.00...12.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 13.00...19.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400
TD travel mm: 9.10...9.90
mm: (8.80...10.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.80...5.20
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 600

TD travel mm: 0.70...1.50
 mm: (0.40...1.80)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1000
 TD travel mm: 2.40...3.20
 mm: (2.10...3.50)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 2400
 Supply-pump pressure bar: 7.10...7.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply-pump pressure bar: 4.80...5.40
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 600
 Supply-pump pressure bar: 2.60...3.20
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 2900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 2700
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...11.50
 1000S.: (3.00...13.00)
 5th speed 1/min: 2600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...19.00
 1000S.: (12.00...20.00)
 9th speed 1/min: 2400

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.80...31.20
 1000S.: (27.70...32.30)
 10th speed 1/min: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 33.80...36.20
 1000S.: (32.70...37.30)
 12th speed 1/min: 1500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.50...33.50
 1000S.: (30.70...35.30)
 20th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.50...31.50
 1000S.: (27.00...33.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...12.00
 1000S.: (5.00...15.00)
 Dispersion cm³/: 2.5
 1000S.: (2.5)
 2nd speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.50...6.50
 1000S.: (0.00...7.00)
 4th speed 1/min: 650
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...60.00
 1000S.: (30.00...60.00)
 2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 25.00...35.00
1000S.: (25.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 40.00...70.00

1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.6...6.0

MS mm: 1.2...1.6

SVS max. mm: 2.3

Ya mm: 38.7...40.7

Yb mm: 41.5...48.5

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 01.07.92
replaces : 16.01.89
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R328
Type number : 0 460 494 239
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 086-1.6L LLK

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 750
Setting value bar: 5.60...6.20

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 26.50...27.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 9.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.00...3.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2250
 Charge press hPa: 750
 TD travel mm: 6.10...6.90
 mm: (5.80...7.20)
 electromagnet Volt: 12
 2nd speed 1/min: 1800
 Charge press hPa: 750
 TD travel mm: 4.80...5.60
 mm: (4.50...5.90)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press hPa: 750
 TD travel mm: 3.80...4.20
 mm: (3.30...4.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 750
 TD travel mm: 1.80...2.60
 mm: (1.50...2.90)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
 Charge press. hPa: 750
 Supply-pump pressure bar: 3.30...3.90
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Charge press. hPa: 750
 Supply-pump pressure bar: 5.60...6.20
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump pressure bar: 7.70...8.30
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (27.80...97.30)
 2nd speed 1/min: 2250
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 900
 Charge-air pressure-setting point hPa: 300
 LDA-stroke mm: 5.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.50...33.50
 1000S.: (30.00...36.00)

2nd speed 1/min: 2650
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000S.: (0.00...6.00)

5th speed 1/min: 2525
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (11.00...19.00)

8th speed 1/min: 2425
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 26.50...36.50
 1000S.: (25.50...37.50)

9th speed 1/min: 2250
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.30...38.30
 1000S.: (35.10...39.50)

12th speed 1/min: 1500
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm³/: 42.00...43.00
 1000S.: (40.30...44.70)

18th speed 1/min: 700
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 26.50...27.50
 1000S.: (34.00...30.00)

20th speed 1/min: 700
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 34.00...37.00
 1000S.: (32.50...38.50)

21th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.00...30.00
 1000S.: (22.50...32.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (4.50...15.50)
Dispersion cm³/: 2.5
1000S.: (3.0)

High Idle:

1st speed 1/mi: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (5.00...15.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...3.00
1000S.: (-0.50...5.50)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...4.50
1000S.: (0.00...7.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...37.00
1000S.: (17.00...37.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: K1
MS	mm: 1.1...1.5
XK	mm: 20.0...22.0
XL	mm: 9.9...13.3

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 02.07.92
replaces : 19.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R343
Type number : 0 460 494 246
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M710 DT 19 D

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Charge press hPa: 1000

Setting value bar: 3.20...3.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 52.00...53.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 40.00...41.00

KSB/AFB 11
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 11.00...15.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700
Del. quantity cm3/
1000S.: 4.00...6.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 30.00...36.00

KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 55.00...85.00
mind 1000S.: 55.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 800
Inj.-qty. cm³/
difference 1000S.: 10.00...18.00*

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 800
TD-travel
difference mm: 0.70...0.90*

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 800
Supply pump
pressure
difference bar: 0.10...0.30#

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8.20...9.00
mm: (7.90...9.30)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.20...2.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5.30...6.10
mm: (5.00...6.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 2.50...5.50
mm: (2.50...5.50)

Shutoff
electromagnet Volt: 12
9th speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 3.20...4.80
mm: (2.50...5.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.00...7.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.30...5.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.20...3.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
 quantity cm3/10s: (41.70...83.40)
 2nd speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 6.2
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 43.50...44.50
 1000S.: (41.50...46.50)
 2nd speed 1/min: 2450
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 12.00...20.00
 1000S.: (11.00...21.00)
 3rd speed 1/min: 2650
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...7.00
 1000S.: -
 5th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 30.00...36.00
 1000S.: (29.00...37.00)
 9th speed 1/min: 2100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 50.50...53.50
 1000S.: (49.50...54.50)
 10th speed 1/min: 800
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 55.50...58.50
 1000S.: -
 12th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 52.00...53.00
 1000S.: (50.50...54.50)
 18th speed 1/min: 600
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 40.00...41.00
 1000S.: (38.00...43.00)
 20th speed 1/min: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 37.00...39.00
 1000S.: (35.50...40.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)
 KSB/AFB
 valve Volt: 12

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 11.00...15.00
 1000S.: (9.50...16.50)

Residual:

1.Rotacao 1/min: 700
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 4.00...6.00
 1000S.: (3.00...7.00)

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...9.50
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 800
Inj.-qty. cm³/ : 8.00...10.00#
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Inj.-qty. cm³/: 10.00...18.00*
difference 1000S.: (10.00...18.00)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 800
TD-travel : 0.70...0.90*
difference mm: (0.70...0.90)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 800
Supply pump-
pressure : 0.10...0.30#
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.00...83.00
1000S.: (57.00...83.00)

2nd speed 1/min: 300
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...52.50
1000S.: (37.50...52.50)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.0...1.4
Ya mm: 37.2...39.2
Yb mm: 37.5...43.5

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Adjustment of potentiometer at control lever

Prerequisite: pump set
Speed-control lever in idle position

Apply d.c. voltage 3.5...3.9 V to
connection 1 (positive) and connection
3 (ground).

Turn potentiometer until a voltage of
3.07...3.13 V is indicated between
connection 2 (positive) and connection
3 (ground).

If potentiometer is set correctly, the
voltage must drop to 1.0...1.4 V in
max. control lever position.

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 02.07.92
replaces : 10.05.89
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R345
Type number : 0 460 494 248
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 742

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 800
Setting value bar: 5.10...5.70

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 47.00...48.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 37.00...38.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 5.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.00...6.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.00...29.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press hPa: 800
 TD travel mm: 6.20...7.00
 mm: (6.20...7.00)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1400
 Charge press hPa: 800
 TD travel mm: 4.00...4.40
 mm: (3.50...4.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 800
 TD travel mm: 1.90...2.70
 mm: (1.60...3.00)

Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 1800
 Charge press. hPa: 800
 TD travel mm: 5.70...6.50
 mm: (5.40...6.80)

Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 400
 Charge press. hPa: 800
 TD travel mm: 1.20...3.60
 mm: (1.20...3.60)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 2.60...3.20

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 5.10...5.70

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 6.90...7.50

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (41.70...83.40)
 2nd speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 200
 LDA-stroke mm: 5.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 41.00...42.00
 1000S.: (38.50...44.50)

3rd speed 1/min: 2500
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 2.50...17.50
 1000S.: (2.50...17.50)

5th speed 1/min: 2400
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 23.00...29.00
 1000S.: (22.00...30.00)

8th speed 1/min: 2700
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 0.00...3.00
 1000S.: (0.00...3.00)

9th speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 43.40...45.40
 1000S.: (42.10...46.70)

12th speed 1/min: 1400
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quyntity cm³: 47.00...48.00
 1000S.: (45.20...49.80)

18th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³: 37.00...38.00
 1000S.: (34.50...40.50)

20th speed 1/min: 1000
 Charge press. hPa: 800

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.90...47.90
1000S.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...9.00
1000S.: (3.00...11.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...9.50
1000S.: (3.50...11.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...6.00
1000S.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...100.00
1000S.: (40.00...100.00)

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.7
SVS max. mm: 3.6
Ya mm: 38.8...42.8
Yb mm: 36.5...45.9

Operate control lever after each
manifold-pressure compensator pressure
change. :

* Correction at adjusting nut (46)

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 02.07.92
replaces : 10.05.89
Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R345-1
Type number : 0 460 494 249
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 742

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 800
Setting value bar: 5.10...5.70

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 47.00...48.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 37.00...38.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 5.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.00...6.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.00...29.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press hPa: 800
 TD travel mm: 6.20...7.00
 mm: (6.20...7.00)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1400
 Charge press hPa: 800
 TD travel mm: 4.00...4.40
 mm: (3.50...4.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 800
 TD travel mm: 1.90...2.70
 mm: (1.60...3.00)

Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 1800
 Charge press. hPa: 800
 TD travel mm: 5.70...6.50
 mm: (5.40...6.80)

Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 400
 Charge press. hPa: 800
 TD travel mm: 1.20...3.60
 mm: (1.20...3.60)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 2.60...3.20

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 5.10...5.70

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 6.90...7.50

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm3/10s: (41.70...83.40)
 2nd speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 200
 LDA-stroke mm: 5.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 41.00...42.00
 1000S.: (38.50...44.50)

3rd speed 1/min: 2500
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 2.50...17.50
 1000S.: (2.50...17.50)

5th speed 1/min: 2400
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 23.00...29.00
 1000S.: (22.00...30.00)

8th speed 1/min: 2700
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

9th speed 1/min: 2000
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 43.40...45.40
 1000S.: (42.10...46.70)

12th speed 1/min: 1400
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm3/: 47.00...48.00
 1000S.: (45.20...49.80)

18th speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 37.00...38.00
 1000S.: (34.50...40.50)

20th speed 1/min: 1000
 Charge press. hPa: 800

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 44.90...47.90
1000S.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...9.00
1000S.: (3.00...11.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...9.50
1000S.: (3.50...11.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...6.00
1000S.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...100.00
1000S.: (40.00...100.00)

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 3.6
LDA stroke	mm: 5.5
Ya	mm: 38.8...42.8
Yb	mm: 36.5...45.9

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 07.07.92
replaces : 10.12.91
Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R410
Type number : 0 460 494 272

Customer-specific information
Customer : FIAT-AUTO

Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery

Indicator setting
Piston stroke mm: 1.0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Charge press. hPa: 1000
Setting value mm: 1.80...2.20
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800
Charge press hPa: 1000
Setting value bar: 3.20...3.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 46.00...47.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 33.50...34.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 15.00...19.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700
Del. quantity cm3/
1000S.: 4.00...6.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000

Del. quantity cm³/
1000S.: 30.00...36.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...80.00
mind 1000S.: 50.00

KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 800
Inj.-qty. cm³/
difference 1000S.: -10.00...18.00#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 800
TD-travel
difference mm: -0.70...0.90#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 3.20...4.80 A
mm: (2.50...5.50)

electromagnet Volt: 12
2nd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.50...2.50)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.50...5.50 B
mm: (2.50...5.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.00...7.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.30...5.90

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.20...3.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (41.70...83.40)

2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (55.60...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6.6
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 40.00...41.00
1000S.: (38.00...43.00)

2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...7.00
1000S.: -

3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 12.00...20.00
1000S.: (11.00...21.00)

4th speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 30.00...36.00
1000S.: (29.00...37.00)

5th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 45.00...48.00
1000S.: (44.00...49.00)

6th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 46.00...47.00
1000S.: (44.50...48.50)

7th speed 1/min: 800
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 46.00...49.00
1000S.: -

8th speed 1/min: 800

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 32.00...34.00
1000S.: -

9th speed 1/min: 600
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 33.50...34.50
1000S.: (31.50...36.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

KSB/AFB
valve Volt: 12

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 15.00...19.00
1000S.: (13.50...20.50)

Dispersion cm3/: 2.5
1000S.: (2.5)

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.50...9.50
1000S.: -

Residual:

1.Rotacao 1/min: 700
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.00...6.00
1000S.: (3.00...7.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 800
Inj.-qty. cm³/: 8.00...10.00'
difference 1000S.: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 800
Inj.-qty. cm³/: 10.00...18.00#
difference 1000S.: (10.00...18.00)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 800
TD-travel : 0.70...0.90#
difference mm: (0.70...0.90)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 800
Supply pump-
pressure : 0.10...0.30'
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

2nd speed 1/min: 300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 32.50...47.50
1000S.: (32.50...47.50)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 5.6...6.0
KF mm: 3.2...3.4
MS mm: 1.0...1.4
LDA stroke mm: 6.6
Ya mm: 37.2...39.2
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.
..303

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.07.92
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R433
Type number : 0 460 494 286
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 L WK UD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 49.30...50.30

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.00...18.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...43.00
mind 1000S.: 37.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -7.00...11.00*

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: -1.90...2.10*
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100

Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000S.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.90...42.90
1000S.: (39.70...44.10)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quynity cm³/: 49.30...50.30
1000S.: (47.60...52.00)

16th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 37.50...40.50
1000H.: (36.00...42.00)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.60...45.60
1000S.: (41.90...46.30)

21th speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (34.50...45.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 16.00...18.00
1000S.: (13.00...21.00)
Dispersion cm3/: 2.0
1000S.: (3.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : -4.50...6.50'
difference 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Inj.-qty. cm3/: -7.0...11.0*
difference 1000S.: -(5.00...13.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm3/: +0.00...3.00#
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.90...2.10*
difference mm: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : -2.50...2.90#
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.10...0.30'
difference bar: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : -1.00...1.40#
difference bar: -(0.80...1.60)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 1.1...1.5
Ya mm: 37.6...41.6
Yb mm: 50.4...63.3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.07.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R479
Type number : 0 460 494 321
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 UD f. B4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 49.30...50.30

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.00...18.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...43.00
mind 1000S.: 37.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -7.00...11.00#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: -1.90...2.10#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100

Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000s.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000s.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.90...42.90
1000s.: (39.70...44.10)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quynity cm³/: 49.30...50.30
1000s.: (47.60...52.00)

16th speed 1/min: 600
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 37.50...40.50
1000H.: (36.00...42.00)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.60...45.60
1000s.: (41.10...47.10)

21th speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000s.: (34.50...45.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

Damper set qty.:

2nd speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 17.00...19.00
1000S.: (14.00...22.00)

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 16.00...18.00
1000S.: (13.00...21.00)
Dispersion cm3/: 2.0
1000S.: (3.0)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : -4.50...6.50*
difference 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Inj.-qty. cm3/: -7.0...11.0#
difference 1000S.: -(5.00...13.00)
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm3/: +0.00...3.00'
difference 1000S.: -

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.90...2.10#
difference mm: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : -2.50...2.90'
difference mm: -(2.10...3.30)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.10...0.30*
difference bar: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : -1.00...1.40'
difference bar: -(0.80...1.60)
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 27.00...29.00
1000S.: (24.00...32.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 37.00...43.00
1000s.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.0...1.4
Ya	mm: 37.6...41.6
Yb	mm: 50.1...63.3

Remarks:

Overflow restriction 0.55 mm - Part No.
..303 :

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 06.07.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R479-4
Type number : 0 460 494 322
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 UD f. B4/AU

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00

Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 49.30...50.30
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.00...18.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...43.00
mind 1000S.: 37.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: -7.00...11.00*
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1250
TD-travel
difference mm: -1.90...2.10*
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.60...9.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100

Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000S.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.90...42.90
1000S.: (39.70...44.10)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 49.30...50.30
1000S.: (47.60...52.00)

16th speed 1/min: 600
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 37.50...40.50
1000H.: (36.00...42.00)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.60...45.60
1000S.: (41.10...47.10)

21th speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (34.50...45.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

Damper set qty.:

2nd speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...19.00
1000S.: (14.00...22.00)

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)
Dispersion cm³/: 2.0
1000S.: (3.0)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/: -4.50...6.50'
difference 1000S.: -
Shutoff
electromagnet Volt: 12
5th speed 1/min: 1250
Inj.-qty. cm³/: +0.00...3.00#
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250

K03

TD-travel : -1.90...2.10*
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD-travel : -2.50...2.90#
difference mm: -(2.30...3.10)
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.10...0.30'
difference bar: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : -1.00...1.40#
difference bar: -(0.80...1.60)
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (24.00...32.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 12.0
Rated voltage : 10.0

Mounting and assembly dimensions:

Designation

K	mm: 1.6...1.8
KF	mm: K-0T
MS	mm: 1.0...1.4
Ya	mm: 37.6...41.6
Yb	mm: 50.4...63.3

Remarks:

:
Overflow restriction 0.55 mm - Part No.
..303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 02.07.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2500R341
Type number : 9 460 620 003

Customer-specific information
Customer : ISUZU

Engine : 4EC1-BADT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 700
Setting value mm: 2.80...3.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 700
Setting value bar: 3.80...4.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 700
Del. quantity cm3/
1000S.: 46.90...47.90
Shutoff
electromagnet Volt: 12
Dispersion cm3/: -
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 33.80...37.80
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 8.50...12.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 425
Charge press hPa: 700
Del. quantity cm3/
1000S.: 19.60...25.60
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 38.00...70.00
mind 1000S.: 38.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 700
Inj.-qty. cm3/
difference 1000S.: 16.00...24.00
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: 700

TD-travel
difference mm: 1.40...1.60
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 620
Charge press hPa: 700
TD travel mm: 0.30...1.10
mm: (0.00...1.40)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 700
TD travel mm: 2.80...3.20
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press hPa: 700
TD travel mm: 5.60...6.40
mm: (5.30...6.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 2250
Charge press hPa: 700
TD travel mm: 6.60...7.40
mm: (6.30...7.70)

Supply-pump pressure characteristic:

1st speed 1/min: 620
Charge press. hPa: 700
Supply-pump
pressure bar: 2.20...2.80
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 700
Supply-pump
pressure bar: 2.80...4.40
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2250
Charge press. hPa: 700
Supply-pump
pressure bar: 6.20...6.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (75.00...119.50)

2nd speed 1/min: 2500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Overflow : 94.50...139.00
quantity cm³/10s: (94.50...139.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 340
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.30...44.30
1000S.: (41.30...46.30)

2nd speed 1/min: 2950
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...15.00
1000S.: (0.00...15.00)

3rd speed 1/min: 2750
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 19.60...25.60
1000S.: (18.60...26.60)

4th speed 1/min: 2600
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.10...34.10
1000S.: (26.10...34.10)

5th speed 1/min: 2500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...37.10
1000S.: (33.30...37.90)

6th speed 1/min: 2300
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.50...47.50
1000S.: (43.80...48.20)

7th speed 1/min: 2000
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.30...47.30
1000S.: (43.80...47.80)

8th speed 1/min: 1500
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.90...47.90
1000S.: (45.10...49.70)

9th speed 1/min: 1500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.60...38.60
1000S.: (34.10...39.10)
10th speed 1/min: 1300
Charge press. hPa: 700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.10...49.10
1000S.: (45.60...49.60)
11th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.80...37.80
1000S.: (32.80...38.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...12.50
1000S.: (6.50...14.50)
Dispersion cm³/: 2.5
1000S.: (3.0)
2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: 700
Inj.-qty. cm³/: 16.00...24.00
difference 1000S.: (16.00...24.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 700
TD-travel : 1.40...1.60
difference mm: (1.40...1.60)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...57.50
1000S.: (42.50...57.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...70.00
1000S.: (38.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No.
..343,..344

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE
Edition : 07.07.92
replaces : 18.07.89
Calibrating oil : ISO-4113

Injection pump : VE4/10F2300R365
Type number : 9 460 620 004

Customer-specific information
Customer : ISUZU

Engine : 4 EE1-TC

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil
return temp. °C
with thermometer : 40...48
Electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.90...3.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 52.50...53.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: -
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 9.50...13.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 18.40...24.40
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 44.00...76.00
mind 1000S.: 44.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.90...3.30
mm: (2.40...3.80)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2250
 Charge press hPa: 1000
 TD travel mm: 6.80...7.60
 mm: (6.50...7.90)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump pressure bar: 2.10...2.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 3.90...4.50
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2250
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.50...7.10
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 83.40...127.80
 quantity cm³/10s: (83.40...127.80)
 Delivery-quant. and breakaway char.:
 1st speed 1/min: 1000
 Charge-air pressure-setting point hPa: 410
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 47.80...48.80
 1000S.: (45.80...50.80)
 2nd speed 1/min: 2750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)
 3rd speed 1/min: 2600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 18.40...24.40
 1000S.: (16.90...25.90)
 4th speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 41.00...49.00
 1000S.: (40.00...50.00)
 5th speed 1/min: 2300
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 49.50...52.50
 1000S.: (48.70...53.30)
 6th speed 1/min: 2200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...53.00
 1000S.: (49.20...53.80)
 7th speed 1/min: 1250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.70...35.70
 1000S.: (31.20...36.20)
 8th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 52.50...53.50
 1000S.: (50.70...55.30)
 9th speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 34.70...38.70
 1000S.: (33.70...39.70)
 Mech. shutoff:
 Electr. shutoff:
 1st speed 1/min: 415
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Idle delivery:
 1st speed 1/min: 415
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 9.50...13.50
 1000S.: (7.50...15.50)
 Dispersion cm³/: 2.5
 1000S.: (3.0)
 2nd speed 1/min: 550
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: 1000
Inj.-qty. cm³/ : 16.00...24.00
difference 1000s.: (16.00...24.00)
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 1000
TD-travel : 0.70...0.90
difference mm: (0.60...1.00)
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...52.50
1000s.: (37.50...52.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.00...76.00
1000s.: (44.00...76.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

MS mm: 0.8...1.0
Overflow restriction 0.75 mm - Part No.
...343,...344

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 466 099
 Injection pump
 Pump designation : PES6A75D410/3RS136G
 EP type number : 0 410 476 976
 Governor
 Governor design. : RSV325...1150A8C494-4L
 Governor no. : 0 420 232 572

Customer-spec. information
 Customer : KHD

Engine : F6L912

1st version kW : 74.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 5.1...5.2
 100 s: (5.0...5.4)

Spread cm3 : 0.2
 100 s: (0.4)

2nd speed rpm : 325.0
 Rack travel in mm : 7.1...7.3
 Del.quantity cm3/ : 1.0...1.6
 100 s: (0.8...1.7)
 Spread cm3 : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del.quantity : 51.5...52.5
 1000 : (50.0...54.0)
 Spread cm3 : 2.50
 1000 : (4.00)

RATED SPEED

1st version
 Control lever
 position degrees: 102...110

Testing:
 1st rack travel in: 10.10
 Speed rpm : 1190...1200
 2nd rack travel in: 4.00
 Speed rpm : 1225...1255
 3rd rack travel in: 4.00

Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 6.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 325
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 435...495

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.30...12.50
3rd speed rpm : 950
Rack travel in m: 11.60...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 646 271AA
Injection pump
Pump designation : PE6A95D410LS2621
EP type number : 0 410 696 982
Governor
Governor design. : RQV300...1250AB1195L
Governor no. : 0 420 212 172

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 120.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.20...1.30

2nd speed rpm : 500
travel mm : 2.60...2.90

3rd speed rpm : 1000
travel mm : 5.40...5.60

4th speed rpm : 1300
travel mm : 7.70...7.80

5th speed rpm : 1380
travel mm : 8.50...8.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 8.20
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1345...1375
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.20...9.30
2nd speed rpm : 650
Rack travel in m: 9.70...9.80
3rd speed rpm : 850
Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 76.5...79.5
1000 s: (74.0...82.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

K14

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.40...14.80

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 i 2
Edition : 26.06.92
Replaces : 03.90
Test oil : ISO-4113

Combination no. : 0 400 646 275

Injection pump
Pump designation : PE6A95D410LS2621
EP type number : 0 410 696 982
Governor
Governor design. : RQ300/125DAB1148-1L
Governor no. : 0 420 200 104

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 141.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.60

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1325...1355

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 7.90

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.60...10.70

2nd speed rpm : 600

Rack travel in m: 11.10...11.20

3rd speed rpm : 915

Rack travel in m: 11.10...11.20

4th speed rpm : 980

Rack travel in m: 10.60...10.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm³/ : 95.0...98.0

1000 s: (92.5...100.5)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 646 275AA
Injection pump
Pump designation : PE6A95D410LS2621
EP type number : 0 410 696 982
Governor
Governor design. : RQ300/1250AB1148-1L
Governor no. : 0 420 200 104

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 136.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.10...10.20

Del.quantity cm³/ : 9.3...9.5

100 s: (9.1...9.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 93.0...95.0

1000 : (91.0...97.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.10

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1330...1360

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.10...10.20

2nd speed rpm : 650

Rack travel in m: 10.60...10.70

3rd speed rpm : 915

Rack travel in m: 10.30...10.50

4th speed rpm : 980

Rack travel in m: 10.00...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 92.0...95.0

1000 s: (89.5...97.5)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10

Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 646 275AB
Injection pump
Pump designation : PE6A95D410LS2621
EP type number : 0 410 696 982
Governor
Governor design. : RQ300/1250AB1148-1L
Governor no. : 0 420 200 104

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 122.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.30...9.40

Del. quantity cm3/ : 8.3...8.5

100 s: (8.1...8.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del. quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del. quantity : 83.0...85.0

1000 : (81.0...87.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 8.30

Speed rpm : 1295...1310

2nd rack travel in: 4.00

Speed rpm : 1325...1355

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.5

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 915

Rack travel in m: 9.50...9.70

4th speed rpm : 980

Rack travel in m: 9.20...9.50

START CUT-OUT

Speed 1/min : 220 (240)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1295...1310

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 15,8 n1
 Edition : 7.8.92
 Replaces : 19.10.90
 Test oil : ISO-4113
 Combination no. : 0 400 649 219
 Injection pump
 Pump designation : PE10A95D610/4LS2589
 EP type number : 0 410 699 994
 Governor
 Governor design. : RQV300...115DAB1047D
 L
 Governor no. : 0 420 214 242

Customer-spec. information
 Customer : KHD

Engine : F10L413 FW

1st version kW : 170.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 10- 9- 4- 3- 6-
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 0.9...1.5
 100 s: (0.6...1.7)

Spread cm3 : 0.5

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.10...1.60

2nd speed rpm : 390
 travel mm : 2.20...2.60

3rd speed rpm : 1195
 travel mm : 8.70...9.10

4th speed rpm : 1245
 travel mm : 9.40...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 8.60

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed rpm : 200

Minimum rack travel: 8.40

Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 300...420

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.60...9.70

2nd speed rpm : 500

Rack travel in m: 10.60...10.70

3rd speed rpm : 880

Rack travel in m: 10.30...10.50

4th speed rpm : 990

Rack travel in m: 9.90...10.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm³/ : 80.5...83.5

1000 s: (78.0...86.0)

Speed rpm : 100

Del.quantity cm³/ : 65.0...70.0

1000 s: (62.5...72.5)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

When accelerating from engine speed "0", no voltage in starting solenoid.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AA
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 134.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 9.2...9.4

100 s: (9.0...9.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Del.quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Setting point:

Speed rpm : 800

Rack travel in mm : 1.0

Testing:

1st rack travel in: 8.80
Speed rpm : 1365...1375
2nd rack travel in: 4.00
Speed rpm : 1390...1420
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1325
Rack travel in m: 9.80...9.90
2nd speed rpm : 650
Rack travel in m: 9.80...10.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1365...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.00
1000 s: (5.00)

Remarks:

:

K24

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 24.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 149AB
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1325A8C1002
 L
 Governor no. : 0 420 232 310

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 141.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1310...1340
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 520...580

Speed rpm : 700

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.40...10.50

2nd speed rpm : 650

Rack travel in m: 10.90...11.00

3rd speed rpm : 850

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/ : 95.0...98.0

1000 s: (92.5...100.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.00

1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AC
Injection : tip
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310
Customer-spec. information
Customer : KHD
Engine : F6L413F
1st version kW : 134.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 419 992 198
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 014
Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 10.10...10.20
Del. quantity cm³/ : 9.2...9.4
100 s : (9.0...9.6)
Spread cm³ : 0.3
100 s : (0.6)
2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del. quantity cm³/ : 0.9...1.5
100 s : (0.6...1.7)
Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del. quantity : 92.0...94.0
1000 : (90.0...96.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 9.10
Speed rpm : 1290...1300
2nd rack travel in: 4.00

Speed rpm : 1305...1335
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm: 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.10...10.20
2nd speed rpm : 650
Rack travel in m: 10.60...10.70
3rd speed rpm : 850
Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 90.5...93.5
1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AD
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 130.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.80

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1305...1335
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.80...9.90
2nd speed rpm : 650
Rack travel in m: 10.30...10.40
3rd speed rpm : 850
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 87.5...90.5
1000 s: (85.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm³ : 3.00
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AE

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 127.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 0.9...1.5
100 s: (0.6...1.7)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del.quantity : 87.0...89.0
1000 : (85.0...91.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 8.60
Speed rpm : 1290...1300
2nd rack travel in: 4.00

Speed rpm : 1300...1330
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack travel: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.60...9.70
2nd speed rpm : 650
Rack travel in m: 10.10...10.20
3rd speed rpm : 850
Rack travel in m: 9.70...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 83.5...86.5
1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm³ : 3.00
1000 s: (5.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 149AF
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1325A8C1002
 L
 Governor no. : 0 420 232 310

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 123.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall-thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.40...9.50

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1300...1330
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.40...9.50
2nd speed rpm : 650
Rack travel in m: 9.90...10.00
3rd speed rpm : 850
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 79.5...82.5
1000 s: (77.0...85.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 24.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 149AG
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1325A8C1002
 L
 Governor no. : 0 420 232 310

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 127.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1325

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 8.7...8.9

100 s: (8.5...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1325

Del.quantity : 87.0...89.0

1000 : (85.0...91.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.60

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1300...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.60...9.70
2nd speed rpm : 650
Rack travel in m: 10.10...10.20
3rd speed rpm : 850
Rack travel in m: 9.70...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 83.5...86.5
1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.00
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AH
Injection pump
Pump designation : PE6A95D41OLS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 119.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.10...9.20

Del.quantity cm3/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.10

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1300...1330
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.10...9.20
2nd speed rpm : 650
Rack travel in m: 9.60...9.70
3rd speed rpm : 850
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm³ : 3.00
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 149AI
 Injection pump
 Pump designation : PE6A95D410LS245D
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1325A8C1002
 L
 Governor no. : 0 420 232 310

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 134.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.40...10.50

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1220...1250
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.40...10.50
2nd speed rpm : 650
Rack travel in m: 10.90...11.00
3rd speed rpm : 850
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 94.5...97.5
1000 s: (92.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AJ
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310
Customer-spec. information
Customer : KHD
Engine : F6L413F
1st version kW : 124.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 419 992 198
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test Lines : 1 680 750 014
Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600
(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 9.80...9.90
Del.quantity cm3/ : 8.6...8.8
100 s: (8.4...9.0)
Spread cm3 : 0.3
100 s: (0.6)
2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 0.9...1.5
100 s: (0.6...1.7)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del.quantity : 86.0...88.0
1000 : (84.0...90.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 8.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00

Speed rpm : 1215...1245
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.80...9.90
2nd speed rpm : 650
Rack travel in m: 10.30...10.40
3rd speed rpm : 850
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 82.5...85.5
1000 s: (80.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AK

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 118.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 81.0...83.0

1000 : (79.0...85.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1215...1245
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.30...9.40
2nd speed rpm : 650
Rack travel in m: 9.80...9.90
3rd speed rpm : 850
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 76.5...79.5
1000 s: (74.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AL
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 112.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1210...1240
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.50...9.60
3rd speed rpm : 850
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 71.5...74.5
1000 s: (69.0...77.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AM

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer spec. information
Customer : KHD

Engine : F6L413F

1st version kw : 101.0⁴
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.40...8.50

Del.quantity cm3/ : 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 69.0...71.0

1000 : (67.0...73.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1210...1240
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 8.40...8.50
2nd speed rpm : 650
Rack travel in m: 8.90...9.00
3rd speed rpm : 850
Rack travel in m: 8.50...8.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 61.5...64.5
1000 s: (59.0...67.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.40
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AN

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 113.0
Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.9...8.1

100 s: (7.7...8.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL. LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1140...1170
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1075
Rack travel in m: 9.30...9.40
2nd speed rpm : 650
Rack travel in m: 9.80...9.90
3rd speed rpm : 850
Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 76.5...79.5
1000 s: (74.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm³/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149A0
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 105.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 33...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 8.90...9.00

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.90

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1100...1130
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 8.90...9.00
2nd speed rpm : 650
Rack travel in m: 9.40...9.50
3rd speed rpm : 850
Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 69.5...72.5
1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 149AP
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1325A8C1002
 L
 Governor no. : 0 420 232 310

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 90.0
 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 8.10...8.20

Del.quantity cm3/ : 6.3...6.5

100 s: (6.1...6.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.10

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1095...1125
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 8.10...8.20
2nd speed rpm : 650
Rack travel in m: 8.60...8.70
3rd speed rpm : 850
Rack travel in m: 8.20...8.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 56.5...59.5
1000 s: (54.0...62.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AQ
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 96.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980
4th rack travel in: 1600
Speed rpm : 0.00...1.00

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19 00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 9.30...9.40
2nd speed rpm : 650
Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 69.5...72.5
1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AR

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
L
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 107.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1075

Rack travel in mm : 9.00...9.10

Del.quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1075

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 1115...1125

2nd rack travel in: 4.00

Speed rpm : 1140...1170
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1075
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.50...9.60
3rd speed rpm : 850
Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 73.5...76.5
1000 s: (71.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1115...1125

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 149AS
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 100.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 8.90...9.00

Del.quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 73.0...75.0

1000 : (71.0...77.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.90

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1060...1090
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 8.90...9.00
2nd speed rpm : 650
Rack travel in m: 9.50...9.60
3rd speed rpm : 850
Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 70.5...73.5
1000 s: (68.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 149AT

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1325A8C1002
Governor no. : 0 420 232 310

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kw : 90.0
Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 8.30...8.40

Del.quantity cm³/ : 6.5...6.7

100 s: (6.3...6.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 65.0...67.0

1000 : (63.0...69.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.30

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1060...1090
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 520...580
Speed rpm : 700
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 8.30...8.40
2nd speed rpm : 650
Rack travel in m: 8.90...9.00
3rd speed rpm : 850
Rack travel in m: 8.40...8.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 63.5...66.5
1000 s: (61.0...69.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.30
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0
1000 s: (6.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 676 150AA

Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1000A7C1002
L
Governor no. : 0 420 232 309

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 96.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del.quantity : 74.0...76.0

1000 : (72.0...78.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900
Rack travel in m: 9.30...9.40
2nd speed rpm : 650
Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 69.5...72.5
1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 150AB
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1000A7C1002
 L
 Governor no. : 0 420 232 309

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 92.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.0...7.2

100 s: (6.8...7.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 70.0...72.0

1000 : (68.0...74.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.20...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 65.5...68.5
1000 s: (63.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 676 150AC
 Injection pump
 Pump designation : PE6A95D410LS2450
 EP type number : 0 410 696 989
 Governor
 Governor design. : RSV300...1000A7C1002
 Governor no. : 0 420 232 309

Customer-spec. information
 Customer : KHD

Engine : F6L413F

1st version kW : 83.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 8.50...8.60

Del.quantity cm3/ : 6.2...6.4

100 s: (6.0...6.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 62.0...64.0

1000 : (60.0...66.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.50

Speed rpm : 940...950

2nd rack travel in: 4.00

Speed rpm : 950...980
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 8.50...8.60
2nd speed rpm : 650
Rack travel in m: 8.60...8.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm3/ : 59.5...62.5
1000 s: (57.0...65.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.50
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 150AD
Injection pump
Pump designation : PE6A950410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1000A7C1002
L
Governor no. : 0 420 232 309
Customer-spec. information
Customer : KHD
Engine : F6L413F
1st version kW : 77.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 419 992 198
Inlet press., bar : 1.50
Test nozzle holder
assembly : 0 681 343 009
Opening
pressure, bar : 172...175
Test lines : 1 680 750 014
Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750
Rack travel in mm : 9.20...9.30
Del.quantity cm3/ : 6.9...7.1
100 s: (6.7...7.3)
Spread cm3 : 0.3
100 s: (0.6)
2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 0.9...1.5
100 s: (0.6...1.7)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Del.quantity : 69.0...71.0
1000 : (67.0...73.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: ?

Testing:
1st rack travel in: 8.20
Speed rpm : 790...800
2nd rack travel in: 4.00

Speed rpm : 815...845
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 9.20...9.30

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 150AE
Injection pump
Pump designation : PE6A95D410LS2450
EP type number : 0 410 696 989
Governor
Governor design. : RSV300...1000A7C1002
L
Governor no. : 0 420 232 309

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 73.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
: (1.95...2.15)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 8.80...8.90

Del. quantity cm³/ : 6.3...6.5

100 s: (6.1...6.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del. quantity cm³/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del. quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.80

Speed rpm : 790...800

2nd rack travel in: 4.00

Speed rpm : 810...840
4th rack travel in: 1200
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 430...490
Speed rpm : 600
Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 8.80...8.90

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.80
Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.00...14.40

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 676 173AA
Injection pump
Pump designation : PE6A95D410LS2587
EP type number : 0 410 696 983
Governor
Governor design. : RSV300...1150A8C1002
-1L
Governor no. : 0 420 232 379

Customer-spec. information
Customer : KHD

Engine : F6L413F

1st version kW : 112.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
: (1.45...1.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 6- 5- 4- 3- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 7.9...8.1

100 s: (7.7...8.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 79.0...81.0

1000 : (77.0...83.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.20

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1215...1245
3rd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1415
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Speed rpm : 300

Rack travel in mm : 5.90...6.60

Rack travel in mm : 2.00

Speed rpm : 540...600

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.20...9.30

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 850

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm³/ : 78.5...81.5

1000 s: (76.0...84.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0

1000 s: (117.0...133.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 845 081AA

Injection pump
Pump designation : PESSA95D410RS2417
EP type number : 0 410 895 993
Governor
Governor design. : RQV300...1250AB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F5L413FR

1st version kW : 112.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 500

travel mm : 3.20...3.50

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1280

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 95.0...97.0

1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.70
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1340...1370
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 365...480

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.70...9.80
2nd speed rpm : 600
Rack travel in m: 10.00...10.10
3rd speed rpm : 750
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 88.5...91.5
1000 s: (86.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 845 081AB
Injection pump
Pump designation : PES5A95D410RS2417
EP type number : 0 410 895 993
Governor
Governor design. : RQV300...1250AB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F5L413FR

1st version kW : 109.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

M21

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 500

travel mm : 3.20...3.50

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1280

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 93.0...95.0

1000 : (91.0...97.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.50
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1340...1370
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 80...88
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 365...480

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.50...9.60
2nd speed rpm : 600
Rack travel in m: 9.80...9.90
3rd speed rpm : 750
Rack travel in m: 9.60...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 86.5...89.5
1000 s: (84.0...92.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

M22

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 24.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 845 082AA
 Injection pump
 Pump designation : PES5A95D410RS2680
 EP type number : 0 410 895 972
 Governor
 Governor design. : RQV300...1150AB1217L
 Governor no. : 0 420 212 186

Customer-spec. information
 Customer : KHD

Engine : F5L413FRW

1st version kW : 79.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
 : (1.45...1.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 7.80...7.90

Del.quantity cm3/ : 6.6...6.8

100 s: (6.4...7.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.30...1.50

2nd speed rpm : 500

travel mm : 3.40...3.60

3rd speed rpm : 800

travel mm : 5.20...5.60

4th speed rpm : 1150

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 66.0...68.0

1000 : (64.0...70.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 6.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 7.80...7.90
2nd speed rpm : 700
Rack travel in m: 9.30...9.40
3rd speed rpm : 950
Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 73.5...76.5
1000 s: (71.0...79.0)
Speed rpm : 100
Del.quantity cm³/ : 64.5...69.5
1000 s: (62.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.30...14.70

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

2. Set fuel delivery in fuel-delivery
characteristics with stop above the
governor housing.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 846 544AA

Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQV300...1250AB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F6L413FR

1st version kW : 134.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

M25

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 500

travel mm : 3.20...3.50

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1280

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 8.70
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1340...1370
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.70...9.80
2nd speed rpm : 600
Rack travel in m: 10.00...10.10
3rd speed rpm : 750
Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 88.5...91.5
1000 s: (86.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 846 544AB
Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQV300...1250AB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F6L413FR

1st version kW : 127.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

M27

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 9.30...9.40
Del. quantity cm³/ : 9.0...9.2
100 s: (8.8...9.4)
Spread cm³ : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...6.6
Del. quantity cm³/ : 1.2...1.8
100 s: (0.9...2.0)
Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20
2nd speed rpm : 500
travel mm : 3.20...3.50
3rd speed rpm : 1000
travel mm : 6.20...6.40
4th speed rpm : 1250
travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1280
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del. quantity : 90.0...92.0
1000 : (88.0...94.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 8.30
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.30...9.40
2nd speed rpm : 600
Rack travel in m: 9.60...9.70
3rd speed rpm : 750
Rack travel in m: 9.40...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 83.5...86.5
1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 846 544AC

Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQV300...1250AB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F6L413FR

1st version kw : 123.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

NO1

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 9.00...9.10
Del. quantity cm³/ : 8.6...8.8
100 s : (8.4...9.0)
Spread cm³ : 0.3
100 s : (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...6.6
Del. quantity cm³/ : 1.2...1.8
100 s : (0.9...2.0)
Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20
2nd speed rpm : 500
travel mm : 3.20...3.50
3rd speed rpm : 1000
travel mm : 6.20...6.40
4th speed rpm : 1250
travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1280
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del. quantity : 86.0...88.0
1000 : (84.0...90.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 8.00
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 9.00...9.10
2nd speed rpm : 600
Rack travel in m: 9.30...9.43
3rd speed rpm : 750
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 78.5...81.5
1000 s: (76.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 846 544AD

Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQV300...125QAB1211L
Governor no. : 0 420 212 184

Customer-spec. information
Customer : KHD

Engine : F6L413FR

1st version kW : 117.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)
Rack travel in mm : 9.00...12.00

N03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 8.70...8.81
Del.quantity cm³/ : 8.2...8.4
100 s : (8.0...8.6)
Spread cm³ : 0.3
100 s : (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...6.6
Del.quantity cm³/ : 1.2...1.8
100 s : (0.9...2.0)
Spread cm³ : 0.3
100 s : (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.20
2nd speed rpm : 500
travel mm : 3.20...3.50
3rd speed rpm : 1000
travel mm : 6.20...6.40
4th speed rpm : 1250
travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1280
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del.quantity : 82.0...84.0
1000 : (80.0...86.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 118...126

Testing:

1st rack travel in: 7.70
Speed rpm : 1290...1300
2nd rack travel in: 4.50
Speed rpm : 1330...1360
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 8.70...8.80
2nd speed rpm : 600
Rack travel in m: 9.00...9.10
3rd speed rpm : 750
Rack travel in m: 8.80...9.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 74.5...77.5
1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 846 545AA

Injection pump
Pump designation : PES6A95D410RS2681
EP type number : 0 410 896 918
Governor
Governor design. : RQV300...1150AB1217L
Governor no. : 0 420 212 186

Customer-spec. information
Customer : KHD

Engine : F6L413FRW

1st version kW : 96.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
: (1.45...1.65)
Rack travel in mm : 9.00...12.00

N05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 7.80...7.90
Del.quantity cm3/ : 6.6...6.8
100 s: (6.4...7.0)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 300.0
Rack travel in mm : 6.4...6.6
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.0)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.50
2nd speed rpm : 500
travel mm : 3.40...3.60
3rd speed rpm : 800
travel mm : 5.20...5.60
4th speed rpm : 1150
travel mm : 7.80...8.20

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1200
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del.quantity : 66.0...68.0
1000 : (64.0...70.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 6.80
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 7.80...7.90
2nd speed rpm : 700
Rack travel in m: 9.30...9.40
3rd speed rpm : 950
Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 73.5...76.5
1000 s: (71.0...79.0)
Speed rpm : 100
Del.quantity cm³/ : 64.5...69.5
1000 s: (62.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.80
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.40...14.80

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 24.07.92
Replaces : 2300
Test oil : ISO-4113

Combination no. : 0 400 846 545AB

Injection pump
Pump designation : PES6A95D41ORS2681
EP type number : 0 410 896 918
Governor
Governor design. : RQV300...1150AB1217L
Governor no. : 0 420 212 186

Customer-spec. information
Customer : KHD

Engine : F6L413FRW

1st version kW : 86.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60
: (1.45...1.65)

Rack travel in mm : 9.00...12.00

N07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 7.30...7.40

Del.quantity cm3/ : 6.0...6.2

100 s: (5.8...6.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.30...1.50

2nd speed rpm : 500

travel mm : 3.40...3.60

3rd speed rpm : 800

travel mm : 5.20...5.60

4th speed rpm : 1150

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 60.0...62.0

1000 : (58.0...64.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 116...124

Testing:

1st rack travel in: 6.30
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.40
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 7.30...7.40
2nd speed rpm : 700
Rack travel in m: 8.70...8.80
3rd speed rpm : 950
Rack travel in m: 8.00...8.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 64.5...67.5
1000 s: (62.0...70.0)
Speed rpm : 100
Del.quantity cm³/ : 64.5...69.5
1000 s: (62.0...72.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 6.30
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.40...14.80

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 m
 Edition : 26.06.92
 Replaces : 9.86
 Test oil : ISO-4113
 Combination no. : 0 400 846 548
 Injection pump
 Pump designation : PES6A95D410RS2715
 EP type number : 0 410 896 911
 Governor
 Governor design. : RQV300...1250AB1158-1L
 Governor no. : 0 420 212 188

Customer-spec. information
 Customer : KHD

Engine : BF6L913

1st version kW : 140.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.00...14.10

Del.quantity cm3/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.80...0.90

2nd speed rpm : 600
 travel mm : 3.60...3.90

3rd speed rpm : 900
 travel mm : 5.20...5.40

4th speed rpm : 1200
 travel mm : 7.80...7.90

5th speed rpm : 1400
 travel mm : 10.00...10.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1265

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 700

Del.quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 119...127

Testing:

1st rack travel in: 13.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 61...69

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 350...500

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.00...14.10
2nd speed rpm : 500
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 14.00...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 390
Rack travel in m: 13.10...13.20
3rd pressure hPa : 245
Rack travel in m: 11.60...11.80

START CUT-OUT

Speed 1/min : 220 (240)

N10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 800
Del.quantity cm³/ : 92.5...95.5
1000 s: (90.0...98.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 53.0...55.0
1000 s: (51.0...57.0)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)
Rack travel in mm : 15.20...15.60

Remarks:

:

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

GMC-truck

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 568AA
 Injection pump
 Pump designation : PES6A95D41ORS2416
 EP type number : 0 410 896 961
 Governor
 Governor design. : RQV300...1150AB1211-1L
 Governor no. : 0 420 212 217

Customer-spec. information
 Customer : KHD

Engine : F6L413FR-ALLG.

1st version kW : 124.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.50...9.60

Del. quantity cm3/ : 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del. quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 325

travel mm : 1.70...1.80

3rd speed rpm : 375

travel mm : 2.50...2.60

4th speed rpm : 1265

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 93.0...95.0

1000 : (91.0...97.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.50
Speed rpm : 1190...1200
2nd rack travel in: 4.50
Speed rpm : 1240...1270
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack travel: 10.30
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.50...9.60
2nd speed rpm : 650
Rack travel in m: 9.70...9.80
3rd speed rpm : 300
Rack travel in m: 9.50...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 87.5...90.5
1000 s: (85.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

N12

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
Edition : 31.07.92
Replaces : -
Test oil : ISO-4113
Combination no. : 0 400 846 568AB
Injection pump
Pump designation : PES6A95D410RS2416
EP type number : 0 410 896 961
Governor
Governor design. : RQV300...1150AB1211-1L
Governor no. : 0 420 212 217

Customer-spec. information
Customer : KHD

Engine : F6L413FR-ALLG.

1st version kW : 112.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
: (1.85...2.05)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.90...9.00

Del.quantity cm³/ : 8.3...8.5

100 s: (8.1...8.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 325

travel mm : 1.70...1.80

3rd speed rpm : 375

travel mm : 2.50...2.60

4th speed rpm : 1265

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 83.0...85.0

1000 : (81.0...87.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 7.90
Speed rpm : 1190...1200
2nd rack travel in: 4.50
Speed rpm : 1240...1270
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack travel: 10.30
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 8.90...9.00
2nd speed rpm : 650
Rack travel in m: 9.10...9.20
3rd speed rpm : 800
Rack travel in m: 9.00...9.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 77.5...80.5
1000 s: (75.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.90
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

N14

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 31.07.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 568AC
 Injection pump
 Pump designation : PES6A95D410RS2416
 EP type number : 0 410 896 961
 Governor
 Governor design. : RQV300...1150AD1211-1L
 Governor no. : 0 420 212 217

Customer-spec. information
 Customer : KHD

Engine : F6L413FR-ALLG.

1st version kW : 118.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00
 : (1.85...2.05)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...6.8

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.30

2nd speed rpm : 325

travel mm : 1.70...1.80

3rd speed rpm : 375

travel mm : 2.50...2.60

4th speed rpm : 1265

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 8.20
Speed rpm : 1190...1200
2nd rack travel in: 4.50
Speed rpm : 1240...1270
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 83...91

Testing:

Speed rpm : 200
Minimum rack travel: 10.30
Speed rpm : 300
Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 9.20...9.30
2nd speed rpm : 650
Rack travel in m: 9.40...9.50
3rd speed rpm : 800
Rack travel in m: 9.20...9.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 82.5...85.5
1000 s: (80.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

N16

Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 14.20...14.60

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 y 1
Edition : 24.07.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 400 846 580

Injection pump
Pump designation : PES6A95D320RS2779
EP type number : 0 410 896 903
Governor
Governor design. : RQV350...1350AB1248-1R
Governor no. : 0 420 213 121

Customer-spec. information
Customer : NAVISTAR

Engine : DTA 360

1st version kW : 138.0
Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 110

Opening
pressure, bar : 250...253

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
(2.40...2.60)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 8.5...8.7

100 s: (8.3...8.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.7...2.1

100 s: (1.5...2.3)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 85.0...87.0

1000 : (83.0...89.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.40
Speed rpm : 1400...1430
2nd rack travel in: 4.00
Speed rpm : 1535...1545
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 215
Rack travel in m: 10.80...10.90
3rd pressure hPa : 345
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 71.0...75.0
1000 s: (69.0...77.0)

BREAKAWAY

N18

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1400...1430

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #1818796C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 z 1
Edition : 24.07.92
Replaces : 03.92
Test oil : ISO-4113

Combination no. : 0 400 846 603

Injection pump
Pump designation : PES6A95D32ORS2779
EP type number : 0 410 896 903
Governor
Governor design. : RQV350...1350AB1251-
1R
Governor no. : 0 420 213 125

Customer-spec. information
Customer : NAVISTAR

Engine : DT 360

1st version kW : 142.0
Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 110

Opening
pressure, bar : 250...253

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55
: (2.40...2.60)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

travel mm : 8.10...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350

Aneroid pressure h: 900

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.30
Speed rpm : 1400...1430
2nd rack travel in: 4.00
Speed rpm : 1535...1545
4th rack travel in: 1625
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.80...6.00

CONSTANT REGULATION
Speed rpm : 350...500

TORQUE CONTROL
Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 1350
Rack travel in m: 12.30...12.40
2nd speed rpm : 850
Rack travel in m: 13.10...13.20
3rd speed rpm : 1200
Rack travel in m: 12.70...12.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 230
Rack travel in m: 10.30...10.40
3rd pressure hPa : 525
Rack travel in m: 12.10...12.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

N20

1st version
Aneroid pressure h: 900
Speed rpm : 850
Del.quantity cm3/ : 96.0...100.0
1000 s: (94.0...102.0)
Spread cm3 : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...70.0
1000 s: (64.0...72.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1400...1430

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: NAVISTAR #1818798C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
Edition : 24.07.92
Replaces : 04.92
Test oil : ISO-4113

Combination no. : 0 400 846 606

Injection pump
Pump designation : PES6A95D32ORS2779
EP type number : 0 410 896 903
Governor
Governor design. : RQV350...1200AB1236-8R
Governor no. : 0 420 213 127

Customer spec. information
Customer : NAVISTAR

Engine : DT 466

1st version kW : 145.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 110

Opening
pressure, bar : 250...253

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75
: (2.60...2.80)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.3...5.5
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
travel mm : 8.60...9.00
2nd speed rpm : 1250
travel mm : 7.30...7.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h: 900
Del.quantity : 97.0...99.0
1000 : (95.0...101.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:

1st rack travel in: 12.10
Speed rpm : 1255...1285
2nd rack travel in: 4.00
Speed rpm : 1400...1410
4th rack travel in: 1525
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.70
2nd pressure hPa : 225
Rack travel in m: 10.50...10.60
3rd pressure hPa : 460
Rack travel in m: 11.90...12.30

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 67.0...71.0
1000 s: (65.0...73.0)

BREAKAWAY

N22

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1255...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...170.0
1000 s: (125.0...175.0)
Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR #1819325C91

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 L 9
Edition : 21.05.92
Replaces : 09.91
Test oil : ISO-4113

Combination no. : 0 400 866 129

Injection pump
Pump designation : PES6A100D320/3RS2763
EP type number : 0 410 806 006
Governor
Governor design. : RSV400...1100A0C2190
-27R
Governor no. : 0 420 233 225

Customer-spec. information
Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 111.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm3/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1230...1240
3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 35...43
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 750
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 96.5...100.5
1000 s: (94.5...102.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3915973

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 w 1
Edition : 26.06.92
Replaces : 08.91
Test oil : ISO-4113

Combination no. : 0 400 866 173

Injection pump
Pump designation : PES6A85D410/3RS2611
EP type number : 0 410 886 902
Governor
Governor design. : RSV325...1200AOC2148
-1L
Governor no. : 0 420 232 567

Customer-spec. information
Customer : KHD

Engine : F6L913 H

1st version kW : 85.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.40...10.50

Del. quantity cm³/ : 6.1...6.2

100 s: (5.9...6.4)

Spread cm³ : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.4...8.6

Del. quantity cm³/ : 0.8...1.4

100 s: (0.6...1.6)

Spread cm³ : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 61.5...62.5

1000 : (59.5...64.5)

Spread cm³ : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Testing:

1st rack travel in: 9.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1460

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 72...80

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 8.5

Speed rpm : 325

Rack travel in mm : 8.40...8.60

Rack travel in mm : 2.00

Speed rpm : 440...500

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 11.00...11.20

3rd speed rpm : 800

Rack travel in m: 11.00...11.20

4th speed rpm : 1050

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/ : 54.0...56.0

1000 s: (51.5...58.5)

Speed rpm : 1050

Del.quantity cm3/ : 59.0...61.0

1000 s: (56.5...63.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 17.60...18.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 4,9 a 1
Edition : 29.07.92
Replaces : 01.08.89
Test oil : ISO-4113
Combination no. : 0 400 874 160
Injection pump
Pump designation : PES4A85D420LS2263
Governor
Governor design. : RSV375...1G00A2B547D
R

Customer-spec. information
Customer : CASE

Engine : A 301 BD

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : WS 187P (CASE)

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2,15...2,25
: (2,10...2,30)
Rack travel in mm : 9,00...12,00
Firing order : 1-3-4-2

Phasing : 0-90-180-270
Tolerance + - ° : 0,50 (0,75)

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 9,00
Del. quantity cm³/ : 4,35...4,55
100 s : (-)
2nd speed rpm : 200
Rack travel in mm : 6,00
Del. quantity cm³/ : 1,15...1,75
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0,30...0,70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del. quantity : 70,0...71,0
1000 : (69,0...72,0)

RATED SPEED

1st version
Control lever
position degrees: 37...45

Testing:
1st rack travel in: 11.20
Speed rpm : 1030...1050
2nd rack travel in: 5,60
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0,20...1,20

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 7,50

Testing:
Speed rpm : 150
Minimum rack travel: 19,00
Speed rpm : 375
Rack travel in mm : 7,40...7,60

Rack travel in mm : 4,00
Speed rpm : 450...470
Speed rpm : 600
Maximum rack trave: 1,00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000
Rack travel in m: 9,00
2nd speed rpm : 800
Rack travel in m: 9,80...9,90
3rd speed rpm : 400
Rack travel in m: 10,50...10,70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 85,5...88,5
1000 s: (84,5...89,5)
Speed rpm : 500
Del.quantity cm3/ : <89,5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8,00
Speed rpm : 1040...1055

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 124,0...135,0
1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 1090
Del.quantity cm3/ : 9,5...17,5
1000 s: (-)

LOW IDLE

Speed rpm : 375
Del.quantity cm3/ : 15,5...19,5
1000 s: (-)

Remarks: